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THE VIRTUE OF HUMILITY

THE sin of pride which ruined man and his world at the beginning of time was a gloomy portent of the evil that would wreck civilization after civilization down the ages. And God's first curse, that the earth should bring forth thorns and thistles to sweating man, presaged all too well the effects of this vice on the course of history. The terrible plight of the world today is a just punishment for its share in a sin of pride; we are reaping the thorns and thistles sowed by the "Reformers" of the sixteenth century. The innocent must suffer with the guilty, till the nations return to God.

But how can the nations return to God? Only by subjecting themselves once more to His will in Faith and Hope and Love; and this is impossible unless they learn the humility taught by the Son of God in His incarnation and on Calvary, and substitute Christian magnanimity for the pride of Lucifer. These are the two antidotes for the poison that hardens the mind and the heart against Christ: magnanimity, by which the extraordinarily gifted man, confident in the God-given talents he pos-

sesses, dares to accomplish great things for his fellow-men or the Mystical Body of Christ; humility, by which every man, considering the depth of his nothingness and sin, and God's excellence as his Creator and Redeemer, is restrained from attempting anything beyond the measure of his nature and of the grace given him, yet at the same time from acting beneath that measure.

Humility is not the outmoded and stiff-corseted virtue of a happily dead era, but a vital and active force to be promoted by the Church today as never before. In an age when she must struggle so against the world's pride, when she needs characters developed to utter perfection naturally and supernaturally, and when she still has the schools and seminaries to effect such a development in her laity, religious, and clergy—in such an age, humility is absolutely indispensable. It will foster in every individual either the self-assertion or the self-suppression proportionate to the talents he has received, and thus bring about fruitful cooperation of the Mystical Body and its visible head on earth.

If this need is so urgent today, we may ask ourselves, what has the Church to teach about Christ's legacy of humility? In particular, what does her greatest theologian say of it? And from the principles he enunciates, what further can we deduce about it? These are the questions we will attempt to answer in these pages.

In his study of humility in the *Secunda Secundae* of the *Summa Theologica*, St. Thomas follows the method and order best suited for the speculative treatment of any virtue. Is humility something virtuous or vicious? Is it a special virtue with its own formal object? How can it best be defined? What is its subject, its extent, and its place among the other virtues? What is its rank and relation to them? What, finally, are its degrees? The present study will follow the same general plan, but a section on the interior acts of humility will be inserted between the consideration of its objects and subject. Following the saint's procedure elsewhere, the final section will be devoted to the Gift of the Holy Ghost corresponding to it. In

conclusion, an attempt will be made to determine what development Aquinas made of the doctrine handed down to him by the Fathers and ecclesiastical writers of the Western Church.

Every exponent of Thomas' doctrine is confronted by a fundamental problem. He realizes that, if the order of the *Summa* be adopted, what must be presented first of all is the basic part of the matter under discussion, its technical and hence more difficult aspects. For Thomas insists on first things first, on starting at the bottom of things, on digging for universal principles. That difficulty could not be obviated in these pages, and the reader will find the first sections heavy and labored. They attempt to analyze the essence of humility, to differentiate it from all other virtues, to define it with all possible precision. Once the notion of humility is grasped firmly, however, the rest is easy. The understanding of an essence is a bow bent taut toward the stars.

As for sources, the principal one, by far, is the *Summa Theologica*. There is little on this subject in Aquinas' other works, though what they do contain is of sterling quality. Free use has been made of the Commentators, of special studies on allied subjects, and of articles in the philosophical and theological reviews and dictionaries. In the notes, the references to Cajetan's commentary on the *Summa* follow the Leonine edition of the *Opera Omnia*; but those to Thomas' works other than the *Summa* follow the pagination and divisions of the Marietti edition (this being more readily available, in the majority of cases, than the Leonine). For citing works not contained in the Marietti or Leonine texts, the Parma *Opera Omnia* has been used.

I. The Nature of Humility

A) *The Morality of Humility*

Lowliness, nearness to the ground—this, roughly speaking, is the meaning of humility as seen in the etymology of the word itself. What does reason say of such a characteristic? Is it the mark of a reasonable man to consider himself lowly and

worthless; even to act on this knowledge and refrain from what is great and lofty, from ambition, from desire for a high position in the world? Upon the answer to this question depends the morality of humility, its virtuousness or viciousness. It is the question proposed by St. Thomas at the outset of his study in the *Summa*;[1] and it implies the unending objection of the world, even of many Christians.

Is not man the lord of all creation, next only to the angels? His place is among the greatest works of God; he is God's noblest achievement at the beginning of time.

> Thou hast made him a little less than the angels,
> Thou hast crowned him with glory and honor,
> And hast set him over the works of thy hands.
> Thou hast subjected all things under his feet.[2]

Why then should he humble himself? The objection receives new strength from the very position of the question on humility in the *Summa*. Its author has gone to the limits of speculation to prove man's dignity as a creature of God and as a son of God, raised by Him to the level of His own inner life and given the means to spend eternity gazing upon the face of his Maker. A creature raised far above himself by grace, given a new Law of Love, and adorned with virtues that are supernatural not only in mode but even in their substance—what has such a one to do with humility, with lowliness?

From the viewpoint of his elevation, nothing. Such a viewpoint considers man not in himself, but in what he has received from God. And what is that? *Everything that has the notion of being.* The *Summa*, that has praised man so fully, has likewise shown the source of all his excellence and glory, has analyzed his nature minutely and revealed all the gifts that have come down to him from above. Stripped of his divine plumage, what has he left? Absolutely nothing that has the notion of being! He is not even the dust and ashes by which Abraham sought to signify his worthlessness.[3] He is nothing-

[1] II-II, q. 161, a. 1, arg. 2.
[2] *Ps.* viii, 6-8.
[3] *Gen.* xviii, 27.

ness. Worse, he is nothingness befouled by sin. "In man, two things can be considered: that which is God's, and that which is man's. Man's share is whatever pertains to deficiency, but God's is whatever pertains to salvation and perfection." [4] In a word, creation, supernaturalization, and redemption are God's contribution to His rational creature. Man has added sin alone.

In the face of this truth, what should be the reaction of reason? First of all, surely, to acknowledge it intellectually. Secondly, to employ it as a practical principle in daily life. This entails the subjection of man to his Creator, the willingness of the individual to remain in the place allotted to him by divine Providence, the persevering use of his talents in the tasks for which they were bestowed upon him by their giver. Such subjection to divine Providence, born of self-knowledge, is the essence of humility. It forbids the soul to exceed or fall below the measure of natural and supernatural gifts meted out by God; it demands that the rational creature, "considering his deficiency, hold himself to what is lowly, according to his measure." [5] "The virtue of humility consists in this, that a person contain himself within his limits, not extending himself to what is above him, but subjecting himself to his superior." [6]

This is what reason tells us of lowliness of heart. It follows that it is something virtuous, a characteristic of man acting in accordance with right reason. Far from being an indignity to

[4] "... in homine duo possunt considerari: scilicet, id quod est Dei, et id quod est hominis. Hominis autem est quidquid pertinet ad defectum, sed Dei est quidquid pertinet ad salutem et perfectionem" (*Summa Theol.*, II-II, q. 161, a. 3, *corp.*). (Hereafter, references to question 161 of the *II-II* will consist only of the number of the article and the part of it referred to, thus: Art. 3, *corp.*)

[5] "... considerans suum defectum tenet se in infimis secundum suum modum ..." (Art. 1, ad 1).

[6] "... virtus humilitatis in hoc consistit ut aliquis infra suos terminos se contineat, ad ea quae supra se sunt non se extendens, sed superiori se subjiciat ..." (*IV Summa contra Gentiles*, c. 55, ad 17). Throughout this study, the words "superior" and "inferior" have been used merely to transcribe the Latin words, which mean one who is above or below another. Authority is not necessarily implied. He is "superior" who is in any way, howsoever insignificant, more excellent than another.

human personality, a hindrance to the development of noble character, it is an unspeakable glory. "In revering and honoring God, our mind is subjected to him; and it is in this that its perfection consists. For everything is perfected by being subject to its superior: as the body by being vivified by the soul, and the air by being enlightened by the sun." [7]

B) *Humility a Special Virtue*

Humility is a virtue, then, because it is according to right reason. But is it a *special* virtue? Is it, perhaps, only one aspect of some other virtue, as frankness is one aspect of veracity? Is it merely an element that is present in all virtues, as moderation is present in all of them? Or has it a formal object of its own, as prudence has, and fortitude and clemency? If so, it is a special virtue, one set off definitely from all the rest, with definite characteristics and its own peculiar functions.[8]

Humility regulates the soul's élan toward great things. It is concerned, accordingly, with the irascible side of the appetite, that side which faces good not as it is merely desirable, but as it is arduous and difficult of achievement. In other words, humility controls and rationalizes hope, the passion which stimulates man to pursue any future good that he sees will be hard to attain. It functions in the same general field as magnanimity and its little sister philotimia,[9] the two virtues that regard the pursuit of honor. Indeed, it seems to coincide with them in their negative activity of withholding the soul from honors beyond measure. Is humility only a name given them as they are concerned with this reasonable flight from incom-

[7] ". . . per hoc quod Deum reveremur et honoramus, mens nostra ei subjicitur; et in hoc ejus perfectio consistit: quaelibet enim res perficitur per hoc quod subditur suo superiori; sicut corpus per hoc quod vivificatur ab anima, et aer per hoc quod illuminatur a sole" (*Summa Theol.*, II-II, q. 81, a. 7, *corp.*).

[8] Cf. Art. 1, *corp.*

[9] *Magnanimity* is the moral virtue which makes a person of great talents, natural or infused, tend to great achievements worthy of great honor. *Philotimia*, "love of honor," has no exact English equivalent. It is the moral virtue which inclines a person of ordinary abilities, natural or infused, to seek the honor and accomplish the good that is in proportion to those abilities. Cf. Section VII.

mensurate honors, i. e., with the curbing of hope? Or is there room for still another good habit in this single plot of human activity?

On first glance, it would seem not. The fact that lowliness of heart controls hope while magnanimity and philotimia stifle despair, does not necessitate a distinct virtue for both passions. One and the same habit is often concerned with opposite motions of the appetite.[10] Chastity, for example, tempers both the desire for sexual pleasure and aversion to it. The same is true in the irascible, for example in the case of fear and daring. The one virtue of fortitude "regards both fear and daring, being as it were cohibitive of fears and moderative of daring."[11] It is verified also in the case of hope and despair in one who seeks great honors according to right reason. Magnanimity strengthens him against the virus of despair, to achieve deeds worthy of much honor, yet moderates his appetite against inordinate sallies of hope and the misuse of honors.[12]

What becomes of humility, the throttle of hope and of the immoderate quest of one's own excellence? As has just been seen, magnanimity both bridles hope, keeping it from unrestrained tendency toward the great, and hardens the soul against despair, stimulating it to great deeds. Why postulate another virtue concerned with the quest of excellence? Magnanimity in the pale of great honors, philotimia in that of the ordinary ones falling to man's lot, would seem to be quite sufficient. Humility appears to be but a name for the negative, cohibitive side of these two good habits.

[10] Cf. *Summa Theol.*, I-II, q. 60, a. 4, *corp.*

[11] "Et ideo fortitudo est circa timores et audacias, quasi cohibitiva timorum, et audaciarum moderativa" (*Summa Theol.*, II-II, q. 123, a. 3, *corp.*).

[12] Cf. *Summa Theol.*, II-II, q. 129. "Inde habes, primarium actum magnanimitatis, adeoque finem ejus principalem, et objectum formale, esse tendere ad magna magno honore digna, non quidem propter honorem, sed propter eorum excellentiam ratione cujus sunt honore digna; actum vero secundarium, esse moderari appetitum et usum honorum, in ordine ad magna patranda. Ita in fortitudine, actus primarius est sustinere et aggredi; actus secundarius est moderari timores et audacias" (P. Xaverius Faucher, note on Art. 1 *in loc.*, Faucher edition of the *Summa*).

Hence, in its act of restraining the soul from desire for undue honor, magnanimity should receive the name humility. For the latter term connotes simply that perfection of character which keeps man near the earth, *humus*, from which he originated. If its only end is to bridle hope, it can only be one aspect of magnanimity—a secondary and negative one at that, since the principal and positive duty of greatness of soul is to invigorate man in his quest of extraordinary honors.

A closer investigation of the question, however, leads to different conclusions. Great achievements arduous in their accomplishment can be considered in two ways, yes—as they enkindle hope, and as they occasion despair.[13] Man can face the great with two attitudes: he may seek it reasonably and moderately; he may turn from it reasonably and moderately. These two attitudes must be considered more attentively.

On the one hand, in seeking the excellence proportionate to his talents, he ought not merely to advance firmly; he must at the same time refrain from advancing unduly. On the other hand, in fleeing the great, he should not only rein in his appetite for what is above measure, but encourage it to what is proportionate. Otherwise, he would still either seek in excess or seek too little.

It is evident, then, that in the appetition of the great and difficult there exist: appetition which consists principally in aggression, but demands moderate abstention; and flight or aversion, *fuga*, which consists principally in retreat, but demands moderate aggression. Hence there are not merely two, but four motions of the irascible appetite in regard to the arduous, two courting it, two fleeing it. Is it possible for one virtue to keep this complex activity conformable to reason? No. The motive for seeking the excellence due to self is wholly different from the motive for fleeing the great. One tends toward his own excellence, toward the perfection of his faculties, because the doing so is especially praiseworthy, the unfailing mark of a lofty mind. One flees what is great because

[13] Cf. Art. 1, *corp. init.*

human nature considered in itself is nothingness, and nothingness is worthy of nothing. It is this utter dissimilarity of motive in the reasonable quest of the great and in the reasonable flight from it that makes two virtues indispensable. Man must have one good habit concerned first and foremost with the flight from incommensurate honors—humility;[14] another concerned chiefly with the seeking of the excellence due to him—magnanimity or philotimia. As St. Thomas says:

> In the appetition of the arduous, two virtues are necessary. One which will temper and restrain the soul, lest it tend immoderately to what is lofty; this pertains to the virtue of humility. Another which will confirm the soul against despair and impel it to the achievement of grand deeds in accord with right reason; this is magnanimity.[15]

Notwithstanding all this, it is still conceivable that some other virtue, along with its principal function, exercises the double control just ascribed to humility—legal justice, for instance, whose duty as a special virtue is to make the individual willingly subject to the common good, and whose proper object is that common good.[16] Though its principal function is to keep reason in the mutual relations of the members of a community, yet, because it uses all the moral virtues to obtain its own end,[17] it necessarily, if secondarily, reaches into the internal life of the individual and controls his passions and affections.[18] In its *human* aspect, therefore, humility might be a phase of legal justice, subjecting one man to another according to law, directly curbing or spurring ambition, and indirectly restraining or encouraging the inner source of ambition, the appetite

[14] This is humility described by its *primary* act. Cf. *infra*, Section III.

[15] ". . . circa appetitum boni ardui, necessaria est duplex virtus. Una quidem, quae temperet et refraenet animum, ne immoderate tendat in excelsa; et hoc pertinet ad virtutem humilitatis. Alia vero quae firmet animum contra desperationem et impellat ipsum ad prosecutionem magnorum secundum rationem rectam; et haec est magnanimitas" (Art. 1, *corp.*). Cf. I-II, q. 60, a. 4; q. 61, a. 2; Cajetan, *Commentarium in Summam Theologicam S. Thomae*, II-II, q. 161, a. 1, I.

[16] Cf. *Summa Theol.*, II-II, q. 58, aa. 5, 6.

[17] *Ibid.*

[18] *Ibid.*, a. 9; note particularly the answer to the third objection.

for greatness. In its *divine* aspect, humility would be reducible to religion, the virtue of the justice group which makes the will prompt to pay God the subjection it owes Him.

What precisely is it, then, that cuts humility definitely off from magnanimity and justice, and makes it a special virtue? As has just been pointed out, it is the *motive* of humility, that is, the end which reason has in view in keeping the activity of the irascible appetite within the bounds assigned to it by divine Providence. For it is the formal motive or object, as it is called, which distinguishes a virtue from all others.[19] In the case of lowliness of heart, as will be seen in the next section, it is the known worthlessness of the ego in comparison with Him Who created it, raised it to the supernatural order, and redeemed it; in other words, it is the will to be subject to God. "Humility as it is a special virtue regards most of all the subjection of man to God, because of Whom it also subjects itself to others, humbling itself." [20]

C) *The Objects of Humility*

Often it is the simple which is bewildering in its apparent complexity, like the mirror labyrinth at a carnival. Habits are a case in point; incomposite, spiritual units in themselves, they bristle with relationships to both mental and extra-mental reality. The passions and the acts of the superior faculties which they moderate; the persons and things which attract or repel the appetites; the persons and things, too, with which social, political, and religious life are concerned: these are related to virtue as the matter with which it deals. The definite rational control which it aims to establish in some corner of the soul is related to virtue as its purpose, its intrinsic end, its formal object.[21] And the particular good of reason that the

[19] Cf. the next section, on the formal object of humility.

[20] "Humilitas autem, secundum quod est specialis virtus, praecipue respicit subjectionem hominis ad Deum, propter quem etiam aliis humiliando se subjicit" (Art. 1, ad 5).

[21] Cf., e. g., Charles Billuart, *Summa Sancti Thomae*, Dissertatio prooemialis, Art. V, *init.*: "Objectum . . . duplex distinguitur in omni potentia vel habitu,

intellect sees will be obtained by seizing and maintaining that control—this is related to virtue as its formal motive.[22] These are what the philosopher and theologian know as the *objects* of virtue: the material, the formal *quod*, and the formal *quo* objects respectively. They will be referred to in these pages as designated above: the matter, the formal object, and the formal motive. To obtain a clear and full understanding of humility, and of its distinction from its sisters and cousins among the virtues, it will be necessary to study its objects in detail.

1. *The Matter of Humility.* The matter of humility is, to put it baldly, everything. "Humility makes man completely subject to the order [of reason] universally, *quantum ad omnia*; but every other virtue, with regard to some special matter."[23] In other words, there is not a single good, infinite or infinitesimal, uncreated or created, personal or impersonal, with the appetition of which humility is unconcerned. One of its degrees listed by Christian tradition is "to confess and believe oneself useless, and unworthy of anything."[24] This is true despite the fact that it regulates the irascible appetite, which is called into play not by every desirable object, but only by the arduous. The lowly of heart deem even the least good not simply desirable but always difficult, because unobtainable by their own powers. Considering that part of the ego which is their own,

nimirum materiale et formale. Objectum materiale est id quod a potentia vel habitu attingitur quidem, non tamen ratione sui sed ratione alterius. Objectum formale est id quod a potentia vel habitu attingitur ratione sui, et ratione ejus caetera attinguntur. In objecto formali duplex ratio debet distingui: ratio *quae*, et est ipsa res quae attingitur, et dicitur objectum quod, et ratio *qua* seu *sub qua*, et est id quo mediante ratio *quae* attingitur: et dicitur objectum formale quo seu sub quo; ita ut ex hac duplici ratione quae et qua integretur objectum formale, quod est specificativum potentiae vel habitus."

[22] *Ibid.*, Tractatus de spe, Dissertatio unica, Art. II, *praenota*: ". . . [objectum] formale quo est motivum, et ratio propter quam, et sub qua objectum materiale attingitur."

[23] "Ordinationi autem facit hominem bene subjectum humilitas in universali, quantum ad omnia; quaelibet autem alia virtus, quantum ad aliquam materiam specialem" (Art. 5, *corp.*).

[24] ". . . ad omnia indignum et inutilem se confiteatur et credat" (St. Benedict, *Regula*, Cap. VII (M L 66, 374 A), as quoted by St. Thomas, Art. 6, arg. 1).

they see their utter incapacity for good; and when reason prompts them to seek an excellence compatible with their talents, they advance toward it as to something great in comparison with their own nothingness.

It is common to all appetible things, whether they are excellent or not, that, according to the rule of humility, they be sought as things above man's proportion, because the humble address themselves to all things as unworthy of them. . . .[25] Humility directly regards all things, whether arduous in themselves or not arduous in themselves, but all things under the aspect of something arduous. For what is not arduous in itself takes on the notion of the arduous for the humble person, because it takes on the notion of the divine: since the humble address themselves to all goods as to things that are God's.[26]

Be it as small a thing as cooking a better pot of coffee than one's next-door neighbor, or as great a thing as taking St. Peter's place in the Church of Rome; as insignificant a thing as contributing a dime to the Red Cross, or as munificent a thing as turning over a fortune of millions to the needs of an invaded country—all this is matter for humility, as it is ripe matter for pride. A child, trying desperately to establish her superiority over a playmate, was heard to boast, "Well, anyway, the grass at my grandpa's house is higher than yours!" Even the possession of unmown grass can be considered a distinction; a distinction is an excellence; an excellence is something harder to obtain and maintain than its opposite, and so is always the object of the irascible rather than of the concupiscible appetite. In the order of the material or the spiritual, of the sensible or the intellectual, of the natural or the supernatural, there is nothing outside the ambit of lowliness of heart.

[25] ". . . commune est omnibus appetibilibus, sive excedant sive non, quod, secundum humilitatis regulam, appetantur ut supra hominem: quia ad omnia humilis se habet ut indignus" (Cajetan, *Commentarium*, in II-II, q. 161, a. 2: II).

[26] ". . . humilitas est directe respectu omnium, scilicet arduorum secundum se et non arduorum in se, sed tamen omnium est sub ratione ardui. Quia quae non sunt in se ardua, induunt rationem ardui relate ad humilem, quia induunt rationem divini: ad omnia siquidem bona se habet humilis ut ad ea quae Dei sunt" (*Ibid.*, a. 5: XXII, "Secundo").

All goods are matter for humility, whether they are in themselves great or small. For it is concerned with the same things as pride; but it is evident that there is pride even in the smallest excellence, as we see in persons who have to do with mechanics and the humblest occupations, among whom the very worst pride is found. For even cooks are proud.[27]

If man is so constituted that he can be proud of his ability to call hogs louder than his neighbor, or to run a machine that needs but the turning of a crank, it is necessary indeed that the matter of humility be any arduous good whatsoever.

What has been spoken of so far is the remote matter of the virtue. The proximate or immediate matter is the soul's natural inclination to seek its excellence. As has been seen, this is a motion of the irascible appetite toward what is at once difficult and good; in other words, it is the passion of hope. While hope and desire both look to a future good and so are clearly set off from joy and pleasure in a good that is present, hope deals with a great and difficult good, precisely under the aspect of greatness and difficulty.[28] Hope is the élan of the soul toward an absent but possible good that will prove hard to attain. It exists as a passion in the sensitive appetite, as a simple affection of the will in the rational appetite. As a virtue, it is the theological virtue of hope—but with this, humility has no direct connection. It is with the passion and the affection that it is engaged; also with daring, the emotion that springs as it were naturally from hope; and with confidence, which is " a certain robustness of hope springing from some consideration that produces a firm expectation of success." [29] Because these emotions

[27] " Humilitatis vero materia omnia bona sunt, sive secundum se sint magna, sive parva. Quoniam est circa eadem circa quae est superbia: constat autem superbia esse et in excellentia minimorum, ut patet in mechanicis et mediocribus officiis, in quibus pessima superbia invenitur: sunt enim coqui superbi " (*Ibid.*, q. 161, a. 1: III, *fin.*).

[28] Walter Farrell, O. P., *A Companion to the Summa*, II, 136 (New York: Sheed and Ward).

[29] " . . . quoddam robur spei proveniens ex aliqua consideratione, quae facit vehementem opinionem de bono assequendo " (*Summa Theol.*, II-II, q. 129, a. 6, *corp.*). Cf. also the following: " Alius autem motus interior in aliquid tendens est motus spei, et audaciae quae ipsam consequitur. Et hunc motum moderatur

and affections are the things which humility moderates, they constitute its proximate matter.

2. *The Formal Object of Humility.* The formal object of a virtue is its precise purpose, that to which it is immediately ordained.[30] The object of moral virtue in general being to make man live as a rational animal, that of any given virtue will be to keep its proper matter within reason. Thus, the object of temperance is to regulate by reason the use of nourishment and of the sex life; the object of fortitude is to assure man's conformity to reason in imminent danger of death.

Since the matter of humility is the appetition of personal excellence, its formal object will be to control this activity by reason; to see that man acts rationally in searching for and in reaching the position intended for him by Providence, neither going above nor falling beneath it. It "tempers and refrains the soul, lest it tend immoderately to what is lofty."[31] "It belongs properly to humility that a man repress himself, lest he be carried away to things above him."[32] In a word, the purpose of the virtue is to moderate the appetite tending to great things.[33]

It is to be noted that these expressions of St. Thomas insist on the repression of the élan of hope, as if that were the only moderation needed; as if humility never kept hope within the limits of reason by bringing it *up* to these limits, instead of down to them; as if humility did not *use* hope at all, but merely

sive refraenat humilitas" (*Ibid.*, q. 143, a. 1, *corp. post med.*). ". . . magnanimitas et humilitas, quae quodammode se habent ad spem vel fiduciam alicujus magni . . ." (*De virtutibus in communi*, q. unica, a. 12, ad 26). "Ex dictis habetur, materiam intrinsecam humilitatis esse internum animi motum et affectum quae refraenat, ne tendat in sui celsitudinem supra id quod oportet, sed intra mensuram ex propriis meritis sibi debitam, se contineat" (*Cursus Theologicus collegii Salmanticensis*, Tract. XII, Arbor praedicamentalis virtutum, n. 138).

[30] Cf. *Summa Theol.*, I, q. 1, a. 7, *corp.*; I-II, q. 54, a. 2, ad 3.

[31] ". . . temperet et refraenet animum, ne immoderate tendat in excelsa" (Art. 1, *corp.*).

[32] ". . . ad humilitatem proprie pertinet ut aliquis reprimat seipsum, ne feratur in ea quae sunt supra se" (Art. 2, *corp.*).

[33] ". . . inquantum scilicet humilitas nihil est aliud quam quaedam moderatio spiritus" (Art. 4, *corp.*).

repressed it. They insist on its repression, it is true; but they do not in the least exclude its encouragement. Because hope is what it is—a tool of the soul to be employed in overcoming difficulties and in emergencies of all kinds—a passion that because of the loss of original justice is no longer the slave of reason but often an unruly subject with partial independence: because, then, hope is what it is, reason finds that in the majority of cases it needs a bridle rather than a whip.

It cannot be affirmed that the individual who seeks positions beneath his ability is rare; however, he is met with only in the minority of cases. In him, reason moderates hope by stimulating him to act *up* to his measure, aware, nevertheless, of his worthlessness save for the divine element in him. But he is an exception to the rule. Man is born as the lord of creation, of his own lower self, often of other men. His nature must be curbed, not spurred, and is inclined to too much rather than too little.

This necessity of restraining immoderate hope is accidental to humility, inasmuch as reason finds the appetite in the greater number of men excessively thirsty for greatness. Its essential purpose is simply to keep the quest of one's own excellence reasonable.[34] St. Thomas indicates this clearly. "Properly speaking," he says, "humility is directive and moderative of the motion of the appetite."[35] Its formal object, then, is the moderate and reasonable seeking of one's own excellence;[36] it leads man to seek his true place among his fellow men, knowing all the while that he is of himself unworthy of it.[37]

[34] Cf. *Summa Theol.*, I, q. 95, a. 3, ad 1: ". . . accidit temperantiae et fortitudini quod superabundantiam passionum repellat: inquantum invenit passiones superabundantes in subjecto. Sed per se convenit hujusmodi virtutibus passiones *moderari*."

[35] "Et ideo dicendum est quod humilitas proprie est directiva et moderativa motus appetitus" (Art. 2, *corp.*).

[36] The classically incisive definition of pride, "inordinatus appetitus propriae excellentiae" (*Summa Theol.*, II-II, q. 162, a. 2, *corp.*; cf. a. 1, ad 2), clarifies by contrast this statement of the formal object.

[37] The double restraint of humility implied here is a feature not often brought

This distinction of essential and accidental in its formal object makes it clear why Christian tradition has always described humility as *restraining* the soul from all that is beyond measure. The world and men being what they are, "humility represses more than it uses hope or self-confidence; hence, excess is more greatly opposed to it than defect." [38] Pride, the vice that springs from excessive hope, is farther from humility than is servility, the vice begotten of hope that is too weak. The resulting similarity of lowliness of heart and ignoble abjectness calls to mind the external, superficial resemblance of insensibility (excessive forbearance from bodily pleasures) to temperance. This deceptive likeness is one more reason why humility is considered by so many as despicable, a thing for sycophants and shop clerks, a watery serum unbecoming the veins of a red-blooded American. Uriah Heep, instead of the Son of God, has become the incarnation of humility.

3. *The Formal Motive of Humility.* The formal motive of humility is the special good which reason sees will be obtained by guiding the appetite firmly in its tendency toward excellence. If this motive is only the sense of honor which makes man feel obliged to live up to his abilities, humility and magnanimity coincide. They are not two virtues, but one, since this sense of honor is likewise the source of magnanimity, and only those virtues are distinct which have different motivating principles.[39] Can no other reason be assigned for curbing the desire for greatness and place?

We repeat the vigorous statement of Thomas quoted above, "Humility . . . regards most of all *the subjection of man to*

to the attention. The humble man restrains his estimate of himself, knowing he is unworthy of any good, and at the same time marks out for himself a moderate goal. Whether he must gear his hope up or down, he advances always *ut indignus*, "as unworthy," and whether his goal be a doctorate or a policeman's job, he would not have chosen it unless it was in proportion to his abilities.

[38] "Humilitas autem plus reprimit spem vel fiduciam de seipso quam ea utatur; unde magis opponitur sibi superabundantia quam defectus" (Art. 2, ad 3).

[39] Cf. *Summa Theol.*, I-II, q. 54, a. 2, *corp.* & ad 3; a. 3, *corp.*; q. 60, a. 1, *corp.*; q. 63, aa. 4, 5, *corp.*

God." [40] Even more noteworthy is the following sentence: " . . . in repressing the presumption of hope, the chief motive is found in reverence for God, from which it results that one does not attribute to himself more than becomes him, according to the grade he has received from God. Hence humility seems to connote principally the subjection of man to God." [41] Humility represses hope out of reverence for God, inasmuch as reverence for Him implies subjection to His Providence. " Humility, as was said, properly regards the reverence by which man is subjected to God." [42] Man, studying himself and comparing himself with God, learns his nothingness and God's all; accepting the vast import of this truth, he subjects himself to God, and subjects himself therefore to His Providence by assuming the place it has assigned him in the universe. The formal motive of humility, consequently, is reverential fear of God. Reason moderates the irascible appetite not only from a sense of honor, but most of all from a sense of subjection to God. " *Humilitas causatur ex reverentia divina.*" [43] " Its principle and root is the reverence which one has for God." [44]

All this will enable the reader to grasp clearly the meaning of humility. It is the moderation of the élan of the irascible appetite toward any good whatsoever conceived as an excellence, out of reverential fear subjecting man to God. Its aim is to withhold man from all that is above him, because to tend to such things is contrary to the need of subjecting self to God and to the divine element in one's neighbor.

[40] *Supra*, note 16; cf. *Comment. in Phil.*, Cap. II, Lect. I (v. 3), p. 91*a*, *post med.* [in Marietti edition]; *Comment. in Job*, Cap. XXII, Lect. II (v. 29); *Summa contra Gentiles*, IV, c. 55, ad 17; *IV Sent.*, d. 33, q. 3, a. 3, arg. 6 & ad 6.

[41] " Sed in reprimendo praesumptionem spei, ratio praecipua sumitur ex reverentia divina, ex qua contingit ut homo non plus sibi attribuat quam sibi competat secundum gradum quem est a Deo sortitus. Unde humilitas praecipue videtur importare subjectionem hominis ad Deum " (Art. 2, ad 3).

[42] " Humilitas autem, sicut dictum est, proprie respicit reverentiam, qua homo Deo subjicitur " (Art. 3, *corp.*).

[43] Art. 4, ad 1.

[44] " Et utriusque principium et radix est reverentia quam quis habet ad Deum " (Art. 6, *corp.*).

D) *Definition of Humility*

With the objects of humility thus determined, it is not difficult to formulate an essential definition. We have seen that the matter of humility is every good insofar as the soul sees it as desirable, yet beyond its own power to attain. Its object is to moderate the hope impelling it toward this good. Its motive in keeping the appetite in order is the congruity of being subject to God.

Two incomplete definitions have already been given, one from the *Summa Theologica*, the other from the *Summa contra Gentiles*. It is the virtue by which a person, " considering his deficiency, holds himself to what is low, according to his measure." It consists in this, " that a person contain himself within his limits, not extending himself to what is above him, but subjecting himself to his superior." [45]

The former is generally quoted as Aquinas' definition; but it does not mention explicitly the motive of humility; the latter mentions but does not specify the essential note of subjection. An exact definition can be framed by completing the former with the implicit content of the latter. *Humility is the moral virtue by which a person, considering his deficiency, holds himself to what is low according to his measure, out of subjection to God.* If he is truly subject to God, he will subject himself also to all that there is of the divine in his neighbor; and he will hold himself not only down to his measure, but if necessary up to it as well.

St. Thomas seems never to have changed his concept of humility in any way. In his commentary on the *Sentences*, one of the earliest works, he writes that " by humility man subjects himself to God out of reverence, and therefore to others because of God." [46] It has already been seen that the essentials of his definition appear in a citation from the last book of the *Summa contra Gentiles*.[47] On the verse from I Corinthians,

[45] Art. 1, ad 1; *IV Summa contra Gentiles*, c. 55, ad 17.

[46] " . . . per eam homo se ex reverentia Deo subjicit, et per consequens alii propter Deum " (*IV Sent.*, d. 33, q. 3, a. 3, ad 6).

[47] In the second paragraph above.

"Charity is not puffed up, is not ambitious," [48] he comments in part as follows: "One seeks his own excellence inordinately when he is not content to be held in the grade appointed him by God. . . . This happens when one is unwilling to be held under the rule of the divine ordination." [49] Explaining a verse in II Corinthians, he says, "Pride is inordinate appetite for one's own excellence. For if one seeks some excellence *under God*, provided he seek it with moderation and for a good end, it can be upheld." [50] A passage in *De Malo* reads, "The knowledge of truth is antecedent to humility; when one has considered the truth, he does not lift himself up beyond his measure." [51] "For 'he that hath been humbled' by wilfully subjecting himself to God, 'shall be in glory,' which he will obtain from God; 'and he that shall bow down his eyes' lest in his intellect he think any proud thought against God, 'he shall be saved'"—such is the Angelic Doctor's doctrine in his commentary on the Book of Job.[52] His teaching in the *Summa Theologica* has been explained in these pages; and his commentary on the Epistle to the Romans shows no change in doctrine during the last years of his life.

This I command: "not to be more wise than it behooveth to be wise." That is, let none be presumptuous, confiding in his sense or wisdom above his measure. Secondly, he [Paul] exhorts to the mean, saying, "But be wise unto sobriety." That is, I command

[48] xiii, 4, 5.

[49] "Tunc autem inordinate suam excellentiam quis appetit, quando non sufficit ei contineri in eo gradu, qui sibi est a Deo praestitus. . . . Quod quidem fit, dum homo non vult contineri sub regula ordinationis divinae" (*Comment. in I Cor.*, Cap. XIII, *Lect.* II (vv. 4, 5), p. 364*b*).

[50] "Superbia enim est appetitus inordinatus propriae excellentiae. Si enim aliquis appetit aliquam excellentiam sub Deo, si moderate quidem appetit, et propter bonum sustineri potest . . ." (*Comment. in II Cor.*, Cap. XII, Lect. III (v. 7), p. 509*b fin.*).

[51] ". . . cognitio veritatis se habet ad humilitatem antecedenter; quia dum aliquis veritatem considerat, se ultra suam mensuram non effert" (q. 8, a. 3, ad 9).

[52] ". . . 'Qui enim humiliatus fuerit,' scilicet Deo se subjiciendo per affectum, 'erit in gloria,' quam scilicet consequetur a Deo: 'et qui inclinaverit oculos,' ne scilicet per intellectum aliquid superbum contra Deum sentiat, 'ipse salvabitur'" (Cap. XXII, Lect. II (v. 29)).

you to be wise in measure, according to the grace given you. For sobriety connotes measure. . . . Thirdly, he teaches how the measure of the mean is to be decided, saying, "And according as God hath divided," that is, distributed, "to every one the measure of faith," that is, the measure of his gifts, which is ordained to the manifestation of faith.[53]

Thus, the definition gathered from the *Summa Theologica* agrees in all its elements with Thomas' doctrine in his other works. It will prove of inestimable value in studying the subject, acts, extent, and rank of humility, and its relation to the other virtues.

II. The Subject and Foundations of Humility

A) *The Subject*

Being a virtue, humility is a habit meant for action; it is a good disposition of the appetite for one's own excellence. It gives that appetite a permanent, living channel along which its activity can flow according to the dictates of reason. It will be found, consequently, in that part of the soul for whose activity it creates this channel. In other words, its *subject* will be the irascible appetite.[54]

It follows that even though much knowledge of self, and of God as man's Creator and supreme Director, are prerequisite to the virtue, it exists not in the cognoscitive but in the appetitive side of nature. It cannot be defined as knowledge of self, but knowledge of self is essential for it.

It is proper to humility to make man curb himself, lest he be carried away to things above him. To this end, he needs to know

[53] "Hoc, inquam, mando, 'non plus sapere quam oportet sapere,' idest, nullus praesumat, de sensu aut sapientia sua confidens supra suam mensuram. Secundo hortatur ad id quod est medium, dicens: 'Sed sapite ad sobrietatem,' scilicet mando vobis, ut mensurate sapiatis secundum gratiam vobis datam. Sobrietas enim mensuram importat. . . . Tertio docet secundum quid accipienda sit mensura medii, dicens: 'Et hoc,' inquam, 'sicut Deus unicuique divisit,' idest distribuit, 'mensuram fidei,' idest, mensuram donorum suorum, quae ordinatur ad fidei manifestationem" (Cap. XII, Lect. I (v. 3), p. 171*b*).

[54] *Supra*, pp. 15-17; cf. Art. 4, arg. 2 & ad. 2.

that in which he falls beneath the proportion of what exceeds his powers. Hence knowledge of one's deficiency belongs to humility as a rule directing the appetite. But it is in the appetite itself that humility consists essentially.[55]

A habit that controls the activity of some faculty must *be in* it; for habit is nothing more than the inclination of the activity of some faculty to flow in a given moral direction.[56]

From the fact that humility is in the irascible, however, it may not be concluded immediately that it exists only in the lower part of the soul, as a habit moderating passion. The will as it tends toward the arduous is also called irascible.[57] Consequently the question arises, Is humility in both the will and the lower appetite, or in one of them alone?

It must influence both in some way at least, since excellence attracts both. A spiritual excellence such as outstanding virtue, and even a purely material one, when they are apprehended by the intellect as goods in harmony with human nature, become objects of the will. A purely material excellence, moreover, if apprehended by sense knowledge as an arduous good perfecting nature, becomes the object of the lower irascible appetite, which moves toward it with the passion of hope.

Because this hope of excellence is spontaneous and follows blindly the data presented by the senses, the lower appetite is attracted to many things incommensurate with the individual's talents. Rational control, provided by humility, is necessary; and hence the appetite must be influenced by that virtue; in other words, the latter must exist in some way in the lower part of the soul.

That the will's attraction to excellence must be moderated is

[55] " . . . ad humilitatem proprie pertinet ut aliquis reprimat seipsum, ne feratur in ea quae sunt supra se. Ad hoc autem necessarium est ut aliquis cognoscat id in quo deficit a proportione ejus quod suam virtutem excedit. Et ideo cognitio proprii defectus pertinet ad humilitatem, sicut regula quaedam directiva appetitus. Sed in ipso appetitu consistit humilitas essentialiter " (Art. 2, *corp.*).

[56] Cf., e. g., II-II, q. 162, a. 3, *corp.*: " . . . subjectum cujuslibet virtutis vel vitii oportet inquirere ex proprio objecto. Non enim potest esse aliud objectum habitus vel actus, nisi quod est objectum potentiae, quae utrobique subjicitur."

[57] Cf. *Summa Theol.*, I, q. 82, a. 5, *corp.*, and *ad* 2; II-II, q. 162, a. 3, *corp.*

self-evident. But does such moderation postulate a habit in the technical sense of the word? Or is the unaided will capable of tempering its own exuberance? Virtue exists only where a faculty must have assistance in order to attain its object.[58]

There is no need for a moral virtue in any faculty to direct it toward a good proportionate to itself, since such a good is its proper object, that which its very nature fits it to obtain. Habits, since their *raison d'etre* is uniquely to perfect the faculties, to diminish their indetermination by reducing them further from potency toward act, are required only when the latter must act for a good beyond their direct object.[59] The rational appetite needs a habit only when it must be directed to something beyond its own personal and immediate good—God's right to His creatures' adoration, for instance, which is the object of religion, or another's right to lawfully acquired property, which is the object of justice. Hence only those virtues are in the will which direct men toward God and their fellowmen, as charity and veracity.[60] There is no need for a fortitude or temperance of the will, since the object of both is a simple good of reason—the control of passion, from the realization that the nobility of human nature demands it. "How then is humility now placed in the will: humility, which has to do with the passion of hope, and is directed not to the good of another, but to one's own?"[61] Lowliness of heart is concerned primarily with the soul's internal life, with the repression of unlawful desire and wanton hope, only secondarily with man as he is a social being. It resembles temperance more than it does justice. Its formal object is not God's rights nor the state's rights nor another individual's rights, but the preservation of the good of reason in the propensity of the soul to seek

[58] Cf. *Summa Theol.*, I-II, q. 56, a. 6, *corp.* & answers to the objections.

[59] *Ibid.*

[60] *Ibid.*

[61] "Quomodo nunc in voluntate ponitur humilitas, quae est circa passionem spei, et non ad alterius, sed habentis proprium bonum?" Cajetan, *Commentarium*, in II-II, q. 162, a. 3: II.) He goes on to say, "Idem est enim objectum superbiae et humilitatis: sicut universaliter idem est subjectum contrariorum."

its own excellence [62]—a good which seems perfectly in proportion to the human will.

But the pre-eminence of this good, its incommensurability with the human will, is recognized as soon as the formal motive, the specifying principle, of humility is recalled: a sense not merely of honor, but of the obligation to subject self to God. Because humility restrains the appetite, keeping it within the pale of reason indeed, but within that pale as determined by the reverence man owes to God and to the Providence that has determined his role on earth [63]—because of this, the will is incapable alone of arriving at the end of humility, and must have a special habit to aid it.[64] Though it achieves its own good by humility, yet it tends toward that good as seen in the light of the divine good, and therefore intimately and vastly qualified and elevated.

In the will there is no moral virtue for the good of the person possessing it, having precisely the natural judgment as its rule. But the rule of humility is derived from reverence for God.[65]

Lowliness of heart has its chief seat, accordingly, in the will. But, as has been seen, it must also be present in the lower appetite—not in the same manner or degree, of course, for this would mean that the one virtue would have two generically distinct objects, one of the sensible, one of the spiritual order.

A virtue can exist in two potencies only if it be in each in a different way—"*non ex aequo, sed ordine quodam.*" [66] It must be in one principally, as its subject, and in the other as its

[62] *Supra*, Section I, C, 1.

[63] *Supra*, Section I, C, 1.

[64] The fact that humility is motivated by subjection to God does not make it reducible to justice. Cf. *infra*.

[65] ". . . in voluntate nulla est virtus moralis propter bonum habentis, habens pro regula praecise judicium naturale. Humilitatis autem regula ex divina sumitur reverentia. Et propterea non obstat supra habita doctrina [*Summa Theol.*, I-II, q. 56, a. 6, ad 1]. Ponitur siquidem humilitatis virtus in ordine ad coelestem, non humanam civilitatem" (Cajetan, *Commentarium*, in II-II, q. 162, a. 3: IV). He adds an interesting observation: "Unde Philosophus non connumeravit eam inter virtutes."

[66] *Summa Theol.*, I-II, q. 56, a. 2, *corp.*

motivating principle or as a disposition resulting from it, according as one potency is moved by another, and as one potency receives something from another." [67] Thus the theological virtue of faith, residing in the intellect primarily and principally, is also in the will, inasmuch as the will moves the intellect to assent to revealed truth. It is in the intellect as in its subject, but in the will as in its imperating principle.[68]

The powers of the soul are not disconnected and utterly sovereign in their own field; on the contrary, they mutually influence, retard or invigorate one another.[69] Anger inclines the will to seek revenge; the will can stifle anger or excite it to terrifying extremes. Though the higher faculties move the lower ones, the dominion they enjoy is not absolute, because all the powers of the soul move autonomously to their proper objects; it is a dominion persuasive rather than despotic, moral rather than physical.[70]

The rational faculties, by constantly guiding the lower ones along certain lines of action, accustom them to operate in one definite way, and gradually develop in them a disposition to obey reason constantly and easily. If the object of this disposition is commensurate with the faculty in which it exists, that is, if its purpose is merely the subjection of that faculty to reason, the disposition becomes a true habit. The object of the disposition to courageous action developed in the irascible by constant obedience to the will, for example, is merely the conformity of the irascible to reason. This disposition becomes the virtue of fortitude.

If, on the contrary, the object of the disposition is not merely the conformity of some faculty to reason, but a good to which the faculty is not immediately and of itself ordained—a good beyond its own grasp—then the disposition cannot be a complete virtue but remains a mere disposition. It is an instru-

[67] ". . . secundum quod una potentia movetur ab alia; et secundum quod una potentia accipit ab alia" (*Ibid.* The entire article should be read).

[68] *Ibid.*, II-II, q. 4, a. 2, *corp.*

[69] *Ibid.*, I-II, q. 9, aa. 1-3; q. 10, a. 3; q. 24, a. 1.

[70] *Ibid.*, q. 9, a. 2, ad 3.

ment which the higher faculty uses to produce acts that move to and are motivated by a higher good than the lower power could reach alone.

This is the case with humility. The will, in order to restrain the soul's inclination to excellences of a material nature, must control the sensible irascible appetite. By repeatedly forcing the latter to act according to its commands, it builds up in it a strong disposition to obedience. The object of this disposition, however, is not simply the moderation of the élan of the irascible; it is the subjection of the appetite's activity to God and His Providence; it is, indeed, the object which the will proposes to itself in keeping within the bounds of reason.

Humility as it exists in the lower part of the soul, therefore, is not a complete virtue, but a disposition absolutely subject to the will. Lowliness of heart exists principally and primarily in the higher part of the soul.[71]

This conclusion seems much safer and far more in accord with general theological principles than the doctrine of some theologians that there are three or more distinct virtues known by the common name of humility.[72] It is necessary to postulate only one virtue of humility which is subjected principally in the will, secondarily in the sense appetite.[73] Whether in the

[71] Cf. Cajetan, *Commentarium*, in II-II, q. 161, a. 5: XXV, *ante med.*: "... ipsa [humilitas] est subjective principaliter in voluntate, et secundario est circa passionem spei: quia extendit se ultra sensibilia, ut patet ex ejus contrario, scilicet superbia, quae maxime est in bonis spiritualibus." Cf. also John of St. Thomas, *Cursus Theologicus, Commentarium* in I-II, qq. 55, 56: Disputatio XV, Art. II, Qu. II, n. 9.

[72] Cf., e. g., Salmanticenses, *op. cit.*, Tract. XII, Arbor praedicamentalis virtutum, n. 148 *fin.*: "Et quidem loquendo de habitibus acquisitis, nullum alium cognoscimus praeter hos duos, cui humilitatis nomen absolute congruat: voluntas enim in ordine ad propriam excellentiam absolute consideratam, omninoque sistendo in bono proprii suppositi, non eget virtute acquisita. . . . Sed loquendo de virtutibus infusis . . . valde probabile censemus ultra duos praedictos dari in voluntate alium habitum humilitatis in ordine ad excellentiam prout consideratur in spiritualibus sine ordine ad passiones, et etiam sine respectu ad alterum." Cf. also *ibid.*, nn. 80, 144; Disputatio II, Dubium II, n. 54.

[73] It is safe to say that this is not merely Thomistic doctrine, but also St. Thomas', although in the question on humility he writes explicitly only that it is in the irascible as in its subject (Art. 4, ad 2). His answer to this objection im-

will or in the lower irascible, it moderates the flight of the appetite from the one motive of subjection to God.

B) *The Foundations of Humility in the Reason*

Subjected in the will, and existing in the lower irascible as a strong disposition, humility is in the intellect not in any proper sense but as an effect is in its cause.

Still, reason has much to do with the virtue, for self-knowledge is a *sine qua non* of lowliness of heart. "Humility fundamentally and presuppositively connotes the knowledge by which one, considering his deficiency, deems himself unworthy of esteem and honor, and worthy of abjection and contempt." [74] "And therefore the knowledge of one's own deficiency pertains to humility as a directive norm of the appetite." [75] Without self-knowledge, there can be no humility; it is the old principle in a different vest, *nihil volitum nisi cognitum*. Unless man knows what he should seek and avoid in the matter of personal aggrandizement, he will neither seek nor avoid it rightly. His hope will be as sane or as unbalanced as his understanding of his ego.

But one cannot realize the depth of his own imperfection unless he appreciates to some degree the perfection up to which

plies that his opponent is correct in maintaining that "humilitas . . . videtur esse in irascibili, *sicut et* superbia, quae ei opponitur" (*ibid.*, arg. 2). Hence it is logical to apply to humility his conclusions on the subject of pride: "Si ergo arduum quod est objectum superbiae, esset solum aliquid sensibile, in quod potest tendere appetitus sensitivus: oporteret quod superbia esset in irascibili quae est pars appetitus sensitivi. Sed quia arduum quod respicit superbia, communiter invenitur et in sensibilibus et in spiritualibus rebus, necesse est dicere quod subjectum superbiae sit irascibilis non solum proprie sumpta, prout est par appetitus sensitivi, sed etiam communius accepta, prout invenitur in appetitu intellectivo. Unde et in daemonibus superbia ponitur" (*Summa Theol.*, II-II, q. 162, a. 3, *corp.*).

[74] ". . . humilitatem fundamentaliter et praesuppositive importare cognitionem qua quis defectus suos considerans reputat se indignum aestimatione et honore; dignumque abjectione et despectu" (Salmanticenses, *op. cit.*, Arbor praed. virt., n. 133).

[75] "Et ideo cognitio proprii defectus pertinet ad humilitatem, sicut regula quaedam directiva appetitus" (Art. 2, *corp.*).

he fails to measure. There are two terms needed for any comparison.

No man can know himself without the means of comparison with what he ought to resemble. Humility results from self-examination in the light of God, in which light is the standard of truth and justice, whereby we measure what we are in the sight of God.[76]

It is the knowledge of God, of His power and mercy, that keeps humility from collapsing in despair under the weight of human nothingness and sin. Further, a study of man's miserable achievements in contrast to his desires, aspirations, and possibilities, can produce only a passing sentiment of discouragement that will give way to renewed hope, and in all probability to renewed pride or ambition, as soon as the keenness of these humiliating thoughts wears off.

The consideration of our own misery may produce a *passing* sense of humility, but the virtue, which is an habitual disposition, does not consist in this; reverence toward God is the one cause that can beget the virtue, and above all render it stable.[77]

Knowledge of God, Thomas tells us, is a guarantee of knowledge of self; and the degree of the second corresponds to the degree of the first.

"He must increase, but I must decrease."[78] This should be verified in the moral life of each and every one of us. "He," that is, Christ, "must increase" in you; that is, you must advance in knowledge and love of him. For the more you apprehend him by knowledge and love, so much the more does Christ increase in you. . . . Hence it behooves men who thus advance to decrease in their own esteem; for the more one knows of the sublimity of God, the lower does he consider the littleness of man.[79]

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[76] Ullathorne, *The Groundwork of the Christian Virtues* (London, 1886), p. 100.

[77] Marmion, *Christ the Ideal of the Monk*, p. 244.

[78] John, iii, 30.

[79] "'Illum oportet crescere, me autem minui.' . . . Moraliter autem hoc debet esse in unoquoque nostrum. 'Oportet illum,' idest Christum, in te 'crescere,' ut scilicet in cognitione et amore ejus proficias: quia inquantum magis eum potes cognoscendo et amando percipere, tanto magis Christus crescit in te. . . . Et ex hoc oportet homines sic proficientes minui in sua reputatione: quia quanto plus

What does self-knowledge teach us that generates the virtue of humility? What do we learn about self and God in studying self?

Looking at the latter, we see that we are caused, moved by forces outside ourselves, limited in our scanty perfection. If we are reasonable, we are forced to conclude the existence of a first transcendent Being that made us, moves us, and gives us a share in its unlimited perfection; we must admit that it is intelligent and moral, as we are, though in a far higher sense. In a word, reason tells us that we are creatures of a personal Creator. Faith proposes the same facts to our belief, and discloses the sublime truth that we were once raised to share the very life of God; that of his own free will our first parent cast the whole human race down from the peak of the supernatural; and that not we, but God, in the form and habit of man, restored us to that height. Faith, then, tells us that man is guilty of casting off from himself the dignity divinely conferred upon him, and that he has been revamped by his Maker. He is a repair job of the Almighty. Self-knowledge reveals that he is nothing, that God is all.[80]

The Dominican Blessed, Louis-Marie Grignon de Montfort, describes vividly what man discovers if he studies himself deeply and is not afraid to admit the disgusting truth.

> The sin of our first father has spoilt us all, soured us, puffed us up, and corrupted us, as the leaven sours, puffs, and corrupts the paste. . . . The actual sins which we have committed, whether mortal or venial, pardoned though they may be, have nevertheless increased our concupiscence, our weakness, our inconstancy, and our corruption, and have left evil consequences in our souls. Our bodies are so corrupted that they are called by the Holy Ghost bodies of sin, conceived in sin, nourished in sin, and capable of all sin—bodies subject to thousands of maladies, which go on corrupting from day to day, and which engender nothing but disease, vermin, and corruption.
>
> "All flesh having corrupted its way," we have nothing for our

cognoscit quis de altitudine divina, tanto minorem reputat parvitatem humanam . . ." (*Comment. in Joann.*, Cap. III, Lect. V, n. 6, p. 111*a*, *ante med.*).

[80] Cf. Garrigou-Lagrange, *Les trois ages de la vie intérieure*, II, 154 ff.

portion but pride and blindness in the spirit, hardness in the heart, weakness and inconstancy in the soul, concupiscence, revolted passions, and sicknesses in the body. We are naturally prouder than peacocks, more grovelling on the earth than toads, more vile than unclean animals, more envious than serpents, more gluttonous than hogs, more furious than tigers, lazier than tortoises, weaker than reeds, and more capricious than weathercocks. We have down in our own selves nothing but nothingness and sin, and we deserve nothing but the anger of God and everlasting hell.[81]

Bitter medicine, these thoughts; but every man conceived in sin or guilty of actual sin must swallow it if he would live. True, Christ in His humanity, and Mary, His Mother, have no sin to humble them, nor ever had; and the angels and saints of heaven need fear sin no more. But they are without matter for humility no more than we are; they are still creatures, and their grace and glory is from God. They are perfect, but only in a certain degree, and not absolutely.

A thing can be called perfect in a certain sense; for example, according to its nature, or according to its state, or time. And in this way the man of virtue is perfect. But his perfection is found defective in comparison with God: according to that of Isaias, "All nations are before him as if they had no being at all." [82] And so, humility becomes every man.[83]

The Catholic doctrine on free will, grace, and predestination, particularly as interpreted by the Thomistic School, reduces the creature still more, to the nadir that is his, and lifts God to the zenith proper to Him.

Man's misery extends to the utmost lengths in the order of both nature and grace. In the order of nature, since we have received from God our body and soul, the forces of the body and the facul-

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[81] *True Devotion to the Blessed Virgin*, trans. by F. W. Faber (New York, 1909), pp. *54-55*.

[82] Isa. XL, 17.

[83] ". . . potest dici aliquid perfectum secundum quid: puta, secundum suam naturam, vel secundum statum, aut tempus. Et hoc modo virtuosus est perfectus. Cujus tamen perfectio, in comparatione ad Deum, deficiens invenitur, secundum illud Isa.: 'Omnes gentes quasi non sint, sic sunt coram eo.' Et sic, cuilibet homini potest convenire humilitas" (Art. 1, ad 4).

ties of the soul, also the very motion by which these faculties pass from potency to act. But especially in the order of grace, in which our regeneration is gratuitous, the virtues are infused gratis, and the passing of potency to meritorious act is due to actual grace. There is nothing in us from ourselves except defect. Finally, the very perfection that we hold from God is infinitely distant from God's perfection; nor, usually, does it correspond to the measure of our faculties, virtues, and divine inspirations. We must, therefore, fixing our eyes on God's perfection and largess, cast ourselves down to our own littleness, our own defects, our own nothingness.[84]

The theology of St. Thomas is found in words of fire and love in the inspired writings of Catherine of Siena, whose spiritual doctrine so amazingly corresponds to that of the Patron of Schools. It is fitting to close this section with a passage from her *Dialogues*, describing the union of knowledge of self and of God necessary for true humility.

If thou wilt arrive at a perfect knowledge and enjoyment of me, the Eternal Truth . . . thou shouldst never get outside the knowledge of thyself, and, by humbling thyself in the valley of humility, thou wilt know me and thyself, from which knowledge thou wilt draw all that is necessary. . . . In self-knowledge, then, thou wilt humble thyself, seeing that, in thyself, thou dost not even exist; for thy very being, as thou wilt learn, is derived from me, since I have loved both thee and others before you were in existence; and that, through the ineffable love which I had for you, wishing to re-create you to grace, I have washed you, and re-created you in the blood of my only-begotten Son, spilt with so great a fire of love. This blood teaches the truth to him who, by self-knowledge, dissipates the cloud of self-love, and in no other way can he learn.[85]

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[84] " Haec autem miseria in ordine cum naturae tum gratiae latissime se extendit. In ordine quidem naturae, utpote qui a Deo accepimus corpus, et accepimus animam, et accepimus vires corporis et animae potentias, ipsam quoque motionem qua hujusmodi facultates transeunt in actum. In ordine praecipue gratiae, in quo et regeneratio est gratuita et virtutes infunduntur gratis et transitus potentiae in actum meritorium actuali gratiae debetur. Nihil in nobis a nobis praeter defectum. Ipsa denique perfectio quam a Deo habemus distat in infinitum a perfectione Dei; nec respondet communiter mensurae facultatum, virtutum, inspirationum divinarum. Oportet igitur nos, oculum fixum habentes in Dei perfectione et largitate, desilire in parvitatem propriam, in proprios defectus, in nihilum proprium." Petrus Lumbreras, *De Fortitudine et Temperantia* (Rome, 1939), p. 181.

[85] *The Dialogues of the Seraphic Virgin, Catherine of Siena*, trans. by Algar Thorold (London: Burnes Oates, 1925), p. 5. See also pp. 14, 19-21, 29.

III. Acts of Humility

Since the matter of humility is anything desirable that is recognized as an excellence, an act of the virtue is obligatory each and every time the higher or lower appetite is attracted toward such a good. From this it is clear that innumerable exterior acts of humility are possible. But it is not these which are in question here, nor even such interior acts as the curbing of intellectual pride. It is the elicited act that is to be discussed, and it alone: the operation which comes directly and immediately from the virtue, which the virtue is by its very nature ordained to produce.

1. Acts of the virtues must not be conceived of as entities really distinct from the operation of the faculties which they perfect.[86] Virtue merely regulates a faculty's activity, in some such way as a conduit determines the direction of water flowing through it. Acts of virtue are rationalized acts of the faculties; acts of the appetitive virtues are rationalized acts of the appetite. In the same way, an act of humility is the rationally directed motion of the irascible appetite, whether superior or inferior, toward excellent good. This is to say that an act of humility is nothing else than the affection or passion of hope darting from the soul under the vigilance of reason—the reasonable quest of the appetite for excellence.

That this is the *essential*, elicited act of the virtue, is clear from a consideration of humility not as it exists in any particular intellectual creature, but as it is essentially a good habit modifying the élan of hope. What was said before of its formal object should be recalled here: that object is the moderate, reasonable seeking of one's own excellence; lowliness of heart leads a person to seek and accept his correct place in the universe, aware that he is abysmally unworthy of it.[87] Naturally, the words designating the formal object designate also the act, object and act differing as end and motion toward end. Hence

[86] Cf. IV *Sent.*, d. 49, q. 1, a. 2, quaest. 2, ad 2.
[87] *Supra*, Section I, C, 1.

the essential act of humility is that by which a person, realizing his unworthiness, hopes for whatever excellence is proportionate to his God-given talents, because subjection to God demands it.[88] This is an act proper to humility alone, elicited by no other virtue. In a word, it is hope reduced to order, out of reverence for God.[89]

2. This conclusion, however, seems to contradict the conviction, universal among Christians, that the first and most noteworthy effect of humility is to subject the heart to God, and to others because of Him. No less an authority than Cajetan maintains that lowliness of heart consists in such subjection principally.

The principal act of humility is the subjection of self to that which belongs to God. For as its very name indicates, humility signifies not an excellence by which one is raised above certain things as a superior, despising them; but rather, a sort of dejection. Likewise, neither is the quest of things that are truly great the principal act of humility; but rather, a certain subjection of the appetite, as the word itself demonstrates.[90]

And Garrigou-Lagrange points out that not even the extinc-

[88] Humility, as has been seen, involves knowledge of self and God. Frequent meditation upon these two things produces a disposition in the reason which inclines it to grasp such thoughts easily and repeat them conaturally. Because of the interplay of intellect and will, this disposition is partially the cause and partially the effect of acquired humility. Hence every act of the virtue is prepared for by an act of thought, and that is why the act of humility is not defined here as coming from the appetite only. Its intellectual preparation is indicated in the words "realizing his unworthiness," its motive in the last phrase, "because subjection to God demands it." The act of the *appetite* is simply hope, moderated by reason, tending toward a proportionate excellence; but it is essentially qualified by the knowledge and motive that have parented it.

[89] Hope is likewise ordered or moderated by other virtues, such as magnanimity and philotimia, under the influence of their formal motives.

[90] ". . . actus humilitatis principalis . . . est subjectio sui ad id quod Dei est. Ut enim ipsum nomen ostendit, humilitas non significat excellentiam qua homo super aliqua feratur ut superior despiciens ea, sed importat dejectionem quandam. Similiter nec appetitus eorum quae vere magna sunt, est principalis humilitatis actus: sed magis subjectio quaedam appetitus, ut ipsum nomen monstrat" (Cajetan, *Commentarium*, in II-II, q. 161, a. 1: V, "ad allatas"). Cf. also *ibid.*, in a. 2: II, "nec tertium."

tion of motions of pride is the principal act of humility. There was never the least trace of that vice in our Lord or in our Lady, yet they practiced the most eminent lowliness. The principal operation of the latter consists in something quite different from the stifling of the inclination to pride.

The proper act of humility consists in inclining self toward the ground, which is called *humus* in Latin, whence the name of this virtue. To speak without metaphor, its proper act consists in abasing oneself before God and before what there is of God in every creature.[91]

If the essential act of humility is the moderate quest of excellence, how can its "principal" act be the subjection of the heart to God? The two seem to move in different directions.

In reality, however, they are *specifically the same act.* The former is the motion of the appetite toward the object of humility, the latter is its motion toward the formal motive of the virtue. Just as the perception of light (the formal *quo* object of sight) is an act of the same species as the perception of something colored (the formal *quod* object of sight), so an act that terminates in the formal motive of a virtue is specifically the same as an act terminating in its formal object.[92] The first perception of a person waking after heavy sleep may be only light; but that perception is specifically the same act as when he opens his eyes next and is aware of the ceiling above him. Both are acts of sight. Numerically, they are distinct; but they are the same specifically. In the same way, subjection to God, and hope kept in moderation from a sense of the

[91] "L'acte propre de l'humilité consiste à s'incliner vers la terre, qui se dit *humus* en latin, d'où le nom de cette vertu. Pour parler sans métaphore, son acte propre consiste à s'abaisser devant Dieu et devant ce qui est de Dieu en toute créature" (Garrigou-Lagrange, *op. cit.*, II, 154).

[92] Cf. *Summa Theol.*, II-II, q. 25, a. 1, *corp.*: "... cum ... species actus ex objecto sumatur, secundum formalem rationem ipsius, necesse est, quod idem specie sit actus, qui fertur in rationem objecti, et qui fertur in objectum sub tali ratione: sicut eadem est specie visio, qua videtur lumen, et qua videtur color secundum luminis rationem." Cf. also *I, Summa contra Gentiles*, c. 76, ad 1: "Omnis ... virtus una operatione vel uno actu fertur in objectum et in rationem formalem objecti, sicut eadem visione videmus lumen, et colorem qui fit visibilis actu per lumen."

obligation to be subject to God, are both essential and elicited acts of humility. One may be produced now, the other at another time; but they are of the same species.

This subjection which, following Cajetan, we shall refer to in these pages as the *principal* act of humility, proceeds first and foremost indeed from lowliness of heart, but is not proper to it alone.[93] Both justice and magnanimity at times demand acts of subjection to God and others, though in their less principal capacities. The principal function of justice is the establishment of the order of reason in the mutual relations of intellectual beings so that everyone receives his due; and this involves the subjection of some to others. Essentially considered, however, justice does not contain the notion of subjection; otherwise it could not be properly attributed to God, Who can be inferior to no one. It necessitates subjection only as it exists in man.[94] Magnanimity consists chiefly in encouraging the soul to attempt great things, and in strengthening it against the poison of despair. A less important function is the subjection of self to others.[95] The principal act of humility, on the contrary, is the subjecting of the soul to God and the divine,

[93] It was said previously that the essential act is "proper to humility alone, elicited by no other virtue." Here we declare that the *principal* act, the subjection of self to God, is specifically the same as the essential act, yet "not proper to it [humility] alone." The apparent contradiction is explained by the fact that subjection to God is effected by other virtues (and therefore is not proper to humility), but that subjection to God *out of reverence for Him* is effected by humility alone (and in this way proper to it).

[94] Cf. Cajetan, *Commentarium*, in II-II, q. 161, a. 5: XII: ". . . justitiae principalis actus est facere seu ponere rationis ordinem in omnibus, quia omnia ad commune bonum sunt ordinabilia; humilitatis autem praecipuus est actus per modum subditi ad omne rationabile se praebere. Cum quibus stat quod esse subjectum sit a justitia secundario. Justitia enim, ut justitia, non facit justum subditum, alioquin Deus, cui repugnat ratio subditi, non esset proprie justus: sed ex justitia in aliquo provenit quod sit subditus. Et sic patet quod non est actus principalis justitiae, sed effectus quidam ejus in aliquo. Unde in definitione justitiae non ponitur subjectio, sed debitum, cum dicitur *jus suum unicuique tribuere*. Humilitas autem etiam ex ipsa voce dejectionem sonat."

[95] For magnanimity secondarily represses the élan of hope lest it tend to a great thing worthy of honor, precisely because this great thing is beyond one's talents and abilities; this often involves the subjection or subordination of self to others.

wherever it is found. In the words of St. Thomas, "As a virtue, humility involves by its very nature a certain laudable dejection to the lowly." [96]

3. Because "it pertains to the same virtue to seek one opposite and flee the other," [97] it is necessary, besides distinguishing the principal act of humility, to consider the two aspects of the essential act. Just as charity both loves God and hates sin,[98] which separates the soul from God, so humility flees from an immoderate quest of one's own excellence, and yet seeks that excellence according to the measure of reason. Only thus can both pride and its servile contrary be avoided; both acts are essential to humility. But since, in the great majority of men, pride is far more apt to ensnare the soul than servility, the holding down of hope to what is proportionate is rightly called the *primary* act of humility. "The principal [that is, primary] act of humility is to leash hope, lest it run without moderation toward what is high." [99]

At times, however, humility must hold the soul *up* to what is proportionate to its abilities and talents, must encourage it to forge ahead, knowing its defects, indeed, and its unworthiness even of the place assigned it by divine Providence. This function, requisite only in the minority of cases, is the *secondary* act of humility. It must be elicited when the soul tends, actually or habitually, toward the nameless vice, sometimes called excessive self-abjection or servility, opposed to humility by excess.[100]

[96] ". . . humilitas, secundum quod est virtus, in sui ratione importat quandam laudabilem dejectionem in ima" (Art. 1, ad 2).

[97] ". . . ad eandem virtutem pertinet prosequi unum oppositorum, et refugere aliud" (*Summa Theol.*, q. 113, a. 5, ad 1).

[98] *Ibid.*

[99] ". . . principalis actus humilitatis est fraenare spem ne immoderate feratur in excelsa . . ." (Cajetan, *Commentarium*, in II-II, q. 161, a. 1: V, paragr. 1).

[100] Cf. Benedict Merkelbach, *Summa Theologiae Moralis* (2nd ed.; Paris, 1935), II, 973 (n. 1047): "Haec inclinat ad imprudentem sui abjectionem quando redundat in injuriam status vel officii quod aliquis gerit, vel talenti quo praeditus est, vel in incommodum eorum quibus prodesse debet. Humilitas propter rationabilem causam propriae excellentiae curam prosequitur."

The primary act of lowliness of heart is hope held down to the mean dictated by reason; the secondary, hope held up to that mean. To illustrate the latter: the ardent pursuit of a political career, taken up after careful and truthful analysis of one's talents and resources, not for honor or power, but from a motive of reverence for God and submission to His will, is a real act of humility. But it is to be noted with regard to this secondary act that, " embracing subjection [to God and to all men because of Him], the humble man does not tend even to what is commensurate except as being subject, neither does he refuse what is abject except insofar as this is in opposition to the proper subjection." [101]

4. In urging the soul to scorn all that is great in this world and to love to be little and unknown, the *Imitation of Christ* echoes the teaching of every master of the spiritual life since the dawn of Christianity.

I am He Who teacheth to despise earthly things, to loathe things present, to seek the things eternal . . . to fly honors . . . to desire nothing outside of Me . . . and above all things ardently to love Me.[102]

St. Thomas uses the same language. " To despise earthly sublimity," he says, " is proper to it [humility]." [103]

In what sense is such disdain of the world *proper* to humility? Aristotle refers it to magnanimity,[104] and the Angelic Doctor, in his tract on that virtue, follows the philosopher faithfully, apparently contradicting his own conclusion just quoted.[105] But it is hard to see how contempt for place and dignity can proceed directly from any habit that has as its matter not the

[101] " . . . humilis . . . amplexus subjectionem, non tendit in condigna nisi ut subditus, nec ipsa viliora fugit nisi quatenus decenti subjectioni repugnant " (Lumbreras, *op. cit.*, p. 182 (n. 317)).

[102] *The Imitation of Christ*, III, 43, n. 3.

[103] " . . . ejus est proprium contemnere sublimitatem terrenam " (Art. 5, ad 3).

[104] *Ethica Nicomachea*, IV, 3. 1124a 13-20; 1124b 5, 6.

[105] *Summa Theol.*, II-II, q. 129, a. 8, ad 2: " . . . magnanimus exteriora bona contemnit. . . ."

passions of hatred and aversion, to which scorn must be reduced, but hope, audacity, and confidence.

To solve the difficulty, it is necessary to understand precisely what is meant by the contempt which the Christian should have for earthly grandeur. For many writers on mysticism, and more than one of the Fathers, it has exactly the same sense that it has in modern English: the estimation of a thing as mean, vile, worthless, or the strong emotion resulting from such an estimation—scorn, disdain. Has Aquinas the same concept, or is the psychological attitude of which he speaks something analogous to the hatred of father and mother that Christ demanded of His followers—an ordinate love, an ordinate love's aversion for all that is inordinate?[106] The correct answer to the question is important, for upon it depends the right Christian attitude to goods of this world, especially honors, dignities, and high offices. The doctrine of St. Thomas is clear, and to one familiar with the *Imitation* and the works of St. Bernard, not a little startling.

Temporal goods should be despised insofar as they hinder us from loving and fearing God. . . . But temporal goods should not be despised when they help us instrumentally to the things that are of divine love and fear. . . .[107] Those who despise honors in such a way as to do nothing unbecoming to obtain them, and who do not prize them too highly, are praiseworthy. But if one were to despise honors in such a way as not to care for things truly worthy of honor, this would be blameworthy. . . .[108] The magnanimous man despises exterior goods, inasmuch as he does not esteem them great goods for which he should do anything unfitting. Yet he does not despise them to the degree of esteeming them useless for achieving works of virtue.[109]

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[106] *Luke*, XIV, 26.

[107] " . . . bona temporalia debent contemni inquantum nos impediunt ab amore et timore Dei. . . . Non autem debent contemni bona temporalia, inquantum instrumentaliter nos adjuvant ad ea quae sunt divini amoris et timoris " (*Summa Theol.*, II-II, q. 126, a. 1, ad 3).

[108] " . . . illi qui contemnunt honores hoc modo quod pro eis adipiscendis nihil inconveniens faciunt, nec eos nimis appretiantur, laudabiles sunt. Si quis autem hoc modo contemneret honores quod non curaret facere ea quae sunt digna honore, hoc vituperabile esset " (*Ibid.*, q. 129, a. 1, ad 3).

[109] " . . . magnanimus exteriora bona contemnit, inquantum non reputat ea bona

Contempt for honor and all that is lofty meant for Thomas only a reasonable avoidance of what, though good under one aspect, is bad or dangerous under many others. Indeed, it implies love. Earthly sublimity is to be contemned to the degree that it is an occasion of pride. But when it is genuinely sought as a means to achieve one's own spiritual good; when it demands only talents one certainly possesses; when it is sought not as a source of honor and glory or power over others, but as a means of doing good that could not be accomplished without some personal eminence—then the seeking of an earthly rank is not only licit but commendable.[110]

It is clear that scorn for worldly greatness is nothing more fanatical than the aversion of an ordinate love for personal excellence, to all that is inordinate and beyond one's measure. It is *proper* to humility in the sense not that it springs from the virtue as its first elicited act, but that it is implied and virtually contained in every primary act of the habit.[111] Because, however, hatred and aversion pertain to the concupiscible appetite, an actual, explicit act of contempt for incommensurate excellence cannot be elicited by humility but must be imperated by it. Yet the response of the concupiscible appetite is so closely and vitally connected with the primary act of humility, and so directly influenced by the virtue's formal

magna, pro quibus debeat aliquid indecens facere. Non tamen quantum ad hoc contemnit ea quin reputet ea utilia ad opus virtutis exequendum" (*Ibid.*, a. 8, ad 2).

[110] Cf. the following texts: *Summa Theol.*, II-II, q. 185, a. 1. *Quodlibeta*, II, q. 6, a. 11; III, q. 4, a. 9; V, q. 11, a. 22; XII, q. 11, a. 17. *Commentarium in Matt.*, Cap. XX, n. 2 (vv. 26-27), p. 274*a post init.*; *ibid.*, Cap. XXIII, n. 1, p. 301*b prop. fin. Comment. in II Cor.*, Cap. XII, Lect. III (v. 7), p. 509*b fin. Comment. in I Tim.*, Cap. III (v. 1), p. 199; *ibid.*, Cap. VI, Lect. IV (v. 17), p. 228*a init. Comment. in Heb.*, Cap. V, Lect. I (vv. 4, 5), p. 344*a post med.*

[111] Cf. Cajetan, *Commentarium*, in II-II, q. 161, a. 5: XXIII: ". . . quia humilitatis principalis actus est reprimere appetitum a sublimibus et a sublimiter se habere (hic est enim modus, hoc est frenum quod humilitas spei ponit ex reverentia divina); et hoc est virtualiter contemnere sublimitatem: ideo, 'contemnere sublimitatem terrenam' humilitatis dictur esse proprium, utpote spectans ad proprium ejus actum; et non ad secundarium, sicut contingit in magnanimo, qui principali actu tendit in magna, non contemnit magna. Quamvis etiam alia et alia ratione uterque contemnat terrena: ut patet ex rationibus magnanimi et humilis."

motive, that it can truly be called proper to humility. The same laudable disdain of greatness can be imperated by magnanimity and philotimia, but only through their secondary acts, since the magnanimous man " tends by the principal act of the virtue toward great things, and does not contemn them." [112]

To sum up, the *essential act* of humility is the hopeful quest of one's own excellence, proceeding according to reason, and taken up out of reverence for God and submission to His Providence. As *principal*, this act becomes a direct act of subjection to God or to the element of the divine present in His intellectual creatures. Normally, the essential act consists in hope that is held down by reason to what is moderate and proportionate (the *primary act*), and often results in a sentiment of contempt and scorn for earthly greatness (the *proper act*). Extraordinarily, for example in the case of one suffering from an inferiority complex, the essential act consists in the encouragement and stimulation of lawful ambition, in the raising of hope to the mean of reason (the *secondary act*).

IV. The Extent of Humility

Humility does not confine its subjection to God alone. Because it leads the will to pay reverence not only to Him but to all that is His, it subjects itself to the divine, wherever it is found. Making man see that his own part of the ego is less than nothingness in comparison to God's part, it shows him also that what he is of himself falls far below what belongs to God in his fellow creatures.[113] To what conclusions does this truth lead?

First of all, humility makes man subject to *every* intellectual being. One must prefer the divine good in others to what is his own in himself. He must not prefer, for example, his own foolhardy audacity in danger to the unspectacular bravery of the truly courageous man. " Everyone should study what is in himself—vice, sin, and defect, for example—and compare them with the good others have from God; and, according to this,

[112] Cf. the preceding note. [113] Art. 3, *corp. init.*

believe himself inferior to them." [114] In the concise words of Thomas, "every man, according to that which is his own, should subject himself to his every neighbor with regard to what there is of God in the latter." [115] Precisely what is this *quid divinum* in others? "[It is] a real, living reflection of the Infinite: it is authority, genius, wisdom, goodness, grace, virtue, sanctity. Whatever its name, whatever its nuance may be, we must honor it out of respect for God whence it comes, as we must love our neighbor out of love for God." [116]

This degree of humility alone is strictly necessary for salvation.

Humility does not require that a man subject what there is of God in himself, to what seems to be from God in another. For those who participate the gifts of God know that they have them, according to that of I Corinthians: "that we may know the things that have been given us by God." [117] And therefore, without prejudicing humility, men can prefer the gifts they have received to the gifts of God which seem to have been given to others.[118]

Whereas it is a sin against God Himself to prefer the deficiency and sin of others to the gifts of God in oneself, another's habit of rollicking drunkenness to one's own cautious sobriety, yet humility does not demand that one believe his own gifts are

[114] ". . . quilibet homo debet considerare ea quae in ipso sunt sua, ut vitia, peccata, et defectus; eaque comparare cum bonis quae alii habent a Deo; et secundum haec sese illis inferiorem censere" (Fr. Sylvius, *Commentarium in II-II divi Thomae* (Douay, 1628), in q. 161, a. 3: "Primo").

[115] ". . . quilibet homo, secundum id quod suum est, debet se cuilibet proximo subjicere quantum ad id quod est Dei in ipso" (Art. 3, *corp.*).

[116] ". . . un reflet réel, vivant de l'Infini: c'est l'autorité, le génie, la sagesse, la bonté, la grâce, la vertu, la sainteté. Quels que soient son nom et sa nuance nous devons l'honorer par respect pour Dieu d'où il provient comme nous devons aimer notre prochain par amour de Dieu" (M.-A. Janvier, *Exposition de la morale catholique*: Morale speciale, XII, La vertu de temperance, II (Careme, 1922): L'humilité (Paris, 1923), p. 61).

[117] *I. Cor.*, II, 12.

[118] "Non autem hoc requirit humilitas, ut aliquis id quod est Dei in seipso, subjiciat ei quod apparet esse Dei in altero. Nam illi qui dona Dei participant, cognoscunt ea se habere, secundum illud *I ad Cor.*, 'Ut sciamus quae a Deo donata sunt nobis.' Et ideo, absque praejudicio humilitatis, possunt dona quae ipsi acceperunt praeferre donis Dei quae aliis apparent collata" (Art. 3, *corp.*).

less than another's, far less that one consider himself the least perfect creature that ever left God's hands. Nor need one drop his own reasoned convictions on political affairs, for example, and submit to the views of another, until he is convinced of his own error. It is not necessarily pride that makes an artist prefer his own works to those of Michelangelo. Posterity *may* confirm his judgment.

Neither is it a sin against lowliness of heart to feel that one is not the greatest sinner in the world. The continent daily communicant need not torture his soul into the belief that he is worse than the murderers and adulterers of whom he reads in the daily papers.

Otherwise it would be necessary that everyone deem himself a greater sinner than anyone else; whereas the Apostle says without prejudice to humility, "We are by nature Jews; and not of the Gentiles, sinners." [119, 120]

It would seem that Billuart goes too far when he writes that "a man can without error, and *ought to* consider and pronounce himself viler than all, unworthy of God's gifts, and of no use whatsoever." [121] The word ought, *debet*, is ill chosen. Man *may*, that is exact enough; "for he can deem that there is some good in his neighbor which he himself lacks, or some evil in himself which is not in another; whence he can subject himself to that other out of humility." [122] It is for sanctity's sake that he *ought* to do so, but salvation is attainable without it.

It is to be noted carefully that humility need never resort

[119] *Gal.*, II, 15.

[120] "Alioquin oporteret ut quilibet reputaret se magis peccatorem quolibet alio: cum tamen Apostolus, absque praejudicio humilitatis, dicat: 'Nos natura Judaei, et non ex gentibus peccatores'" (Art. 3, *corp.*).

[121] ". . . homo potest et debet absque falsitate se reputare et pronuntiare omnibus viliorem, donis Dei indignum et ad omnia ineptum" (Billuart, *op. cit.*, Tractatus de temperantia et virtutibus illi annexis, Dissert. VII, Art. IV, 6, I, "De Humilitate").

[122] "Potest tamen aliquis reputare aliquid boni esse in proximo quod ipse non habet, vel aliquid mali in se esse quod in alio non est, ex quo se potest ei subjicere per humilitatem" (Art. 3, *corp.*).

to psychological sophistry. "Humility is to be placed on the side of truth, not on the side of falsehood." [123] Without fear of error, man can prefer the divine in others to what is his own in himself; and he will be as far from falsehood as good is from evil, as God is from nothingness.[124] Without fear of violence to his judgment, he can even believe himself the worst of all sinners. Comparing his share of good with his neighbor's, he may justly suspect that there is much good in his neighbor, even if he does not see it, which he himself lacks; and that his neighbor shows much more gratitude to God for his talents than he does for his own, and uses them to better advantage.[125] And he may conclude that if even the greatest sinner received the graces he has received, that sinner would now be swinging along God's highway with giant strides, not still toddling and tumbling as he is doing.

One can without error "believe and declare oneself viler than all men," [126] according to the hidden defects he discovers in himself and the gifts of God which lie concealed in others. Hence Augustine says, "Think that those than whom you are seemingly better, are secretly superior." [127] Likewise, one can confess and believe without falsehood that he is good for nothing and unworthy so far as his own powers are concerned, in order to attribute his sufficiency to God, according to that of II Corinthians: "Not that we are sufficient to think anything of ourselves, as of ourselves; but our sufficiency is from God." [128, 129]

[123] "Humilitas collocanda est in parte veritatis, non in parte falsitatis" (Augustine, *De Natura et Gratia*, Cap. XXXIV (M L 44, 265), as quoted by St. Thomas, Art. 3, arg. 2).

[124] Cf. Art. 3, ad 2: ". . . si nos praeferamus id quod est Dei in proximo, ei quod est proprium in nobis, *non possumus* incurrere falsitatem."

[125] Cf. Sylvius, *loc. cit.*: ". . . si bona sua comparet homo cum bonis alterius, cogitare debet aliqua et fortasse multa bona esse in altero, quamvis sibi incognita, quae ipse non habet; ac propterea, alterum majori gratitudine prosequi beneficia divinitus sibi collata, quam ipse prosequatur ea quae a Deo accepit. . . . Etsi defectus, eosque graves in aliis videat, cogitare potest, ac interdum deberet, aliqua mala etiam notabilia sive nota sive ignota sibi inesse, quae non sunt in aliis."

[126] Benedict, *Regula*, Cap. VII. M L 66, 374 A.

[127] *De Sancta Virginitate*, Cap. LII. M L 40, 427.

[128] *II Cor.*, iii, 5.

[129] ". . . aliquis absque falsitate potest 'se credere et pronuntiare omnibus

Commenting on Paul's words, "For I am the least of the Apostles, and am not worthy to be called an Apostle, because I persecuted the Church of God. But by the grace of God I am what I am,"[130] the Angelic Doctor notes that on the face of it this is false, since Paul was not the least but among the greatest. It is wrong to tell an untruth out of humility; why then did Paul call himself the least?

When he says, "because I persecuted the Church of God," he shows how he is least, and how not least. The least, considering his past deeds. . . . "I persecuted the Church of God," which the other Apostles did not do. . . . And though of myself I am the least, yet through God I am not the least. . . . He [Paul] says, therefore: Of myself I am nothing, but what I am, I am by the grace of God—that is, through God, and not through myself.[131]

There is, consequently, nothing to hinder one who is actually superior to others from sincerely deeming himself inferior to all, and ranking himself beneath all in the secrecy of his heart.[132]

In doing so, he reaches humility truly sublime: he not only subjects himself to his own betters, and refrains from preferring himself to his equals—the degree of humility necessary for salvation; not only considers himself beneath his equals—advanced humility; but he even subjects himself to his inferiors—the acme of Christian humility.[133]

viliorem,' secundum defectus occultos quos in se recognoscit et dona Dei quae in aliis latent. Unde Augustinus dicit: 'Existimate aliquos in occulto superiores, quibus estis in manifesto meliores.' Similiter etiam absque falsitate potest aliquis confiteri et credere ad omnia se inutilem et indignum per proprias vires, ut sufficientiam suam totam in Deum referat: secundum illud *II ad Cor.*: 'Non quod sufficientes simus aliquid cogitare a nobis, quasi ex nobis; sed sufficientia nostra ex Deo est'" (Art. 6, ad 1).

[130] *I Cor.*, XV, 9, 10.

[131] ". . . cum dicit: 'Quoniam persecutus,' etc., ostendit quomodo sit minimus, et quomodo non minimus: minimum autem dicit se, considerando praeterita facta sua . . . 'persecutus sum Ecclesiam Dei,' quod alii Apostoli non fecerunt. . . . Et licet ex me sum minimus, tamen ex Deo non sum minimus. . . . Dicit ergo. . . . Ex me nihil sum, sed id quod sum, gratia Dei sum, idest ex Deo, non ex me. . ." (*Comment. in I Cor.*, Cap. XV, Lect. I (vv. 9, 10), p. 389*a*).

[132] Cf. *IV Summa contra Gentiles*, c. 55, ad 17; *Comment. in Phil.*, Cap. II, Lect. I (v. 3), p. 91*a post med.*

[133] Cf. *Comment. in Matt.*, Cap. III, n. 2 (v. 15), p. 52*a ante fin.*: "'Sic enim

The conviction that one is the worst of sinners is a mark of virtue so lofty and rare that modern students of St. Thomas' thought see in it a special gift of God, given only to the predestined few.

The chief source of this heroic humility seems to be an entirely special light infused in them by God, by which they perceive their faults and negligences, even though the smallest, to be unworthy of a Christian soul adorned by grace, and offensive to God; and perceive them with such vividness that from this experimental sense of their own unworthiness, they can no longer take note of the greater sins of others. Hence it is clearly evident that this most perfect humility is a singular gift of God, making the saints immune to all temptations of vainglory, notwithstanding the gifts they have received and the people's veneration.[184]

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(To be continued.)

decet nos implere omnem justitiam' (Matt. 3:15), idest, decet me habere perfectam humilitatem. Primus gradus est non praeferre se pari, et subjicere se majori, quod quidem est necessitatis. Secundus cum subjicit se aequali. Perfecta autem, quando praelatus se subjicit inferiori: et hoc est, 'Sic enim decet,' etc., idest perfectam humilitatem implere."

[184] "Praecipuus fons hujus heroicae humilitatis videtur fuisse lumen omnino speciale ipsis a Deo infusum quo proprias culpas et negligentias, etsi valde leves, tanta claritate intelligerunt anima christiana gratia ornata indignas, Deoque offensivas, ut ex hoc suae indignitatis experimentali sensu, jam ad aliorum majora peccata attendere non possent. Unde clare apparet hanc perfectissimam humilitatem donum Dei esse singulare, quo sancti illi contra quasvis vanae gloriae tentationes immunes fierent non obstantibus donis acceptis et populorum veneratione" (J. Guibert, *Theologia spiritualis ascetica et mystica* (Rome, 1937), n. 353, 2). Cf. also: Guibert, *Etudes de Théologie mystique* (Toulouse, 1930), pp. 283-298; Marmion, *op. cit.*, p. 234.

THE PLATONIC THEORY OF THE CONTINUUM

THE proper correlation of the continuous and the discrete remains one of the fundamental problems of philosophy. Various solutions have been proposed, from the early discussions of the Pythagoreans and the Eleatics to the contemporary controversies about the theory of aggregates, the foundations of topology, or the methods of integration. Some of them are strictly mathematical; while others cover the wider field of metaphysics. But none seems to be satisfactory enough to all thinkers.

The fullest theories which have come down to us from ancient times are those of Plato and Aristotle. Many writers have extolled the remarkable intuitions of the former at the expense of the doctrines of the latter, as the Platonic views seemed to be more in line with the classical conceptions of the calculus. Such an interpretation, however, does not take into account the recent views about the foundations of mathematics, which involve more Aristotelian than other elements. On the other hand, the Platonic views are not only mathematical, but mainly philosophical: hence they should be criticized in themselves, whatever be their partial connection with successful mathematical methods.

Owing to obvious analogies between the classical Greek conceptions and the modern views on the continuous and the discrete, we propose to offer here a short discussion of the *Platonic Theory of the Continuum*, as a background to a critical and historical approach to this important question.

I. IRRATIONALS AND INDIVISIBLES

Having found in mathematics the means of rationalizing the world of knowledge and existence, Plato had to consider the rationalization of mathematics itself as a preliminary requirement. This operation became particularly urgent when it was

shown that geometry involved many notions which could not be accounted for by the arithmetic of integers. It was necessary to explain how the discontinuous series of the integers can generate the geometrical continuum, and how the integers themselves are obtained.

The difficulties of the early Pythagoreans in their treatment of similar problems were due to their inability to establish a generalized arithmetic and to avoid inconsistencies like Zeno's arguments. This failure became evident when the irrationals were discovered. The parallelism between geometry and arithmetic was broken: the Pythagorean concept of number was no longer adequate to account for all geometrical forms and, consequently, for the empirical things corresponding to their geometrical patterns. In order to save the rational value of knowledge as illustrated by the truth of mathematics, it was necessary to revise the conception of number itself, to widen it so that it might become possible to define "irrational" numbers as well, and to formulate laws for their addition and multiplication in terms of the arithmetic of integers.

In fact, Plato could not consider the irrational quantities as being beyond reason. He even used them in his doctrine of Reminiscence. In a well-known passage of the *Meno*, Plato tried to explain that teaching is only re-awakening in the mind of the learner the memory of something. A slave is introduced into a room containing objects the mere sight of which will make him aware, when subjected to the dialectical treatment, of universal truths concerning them. Meno is to watch whether the boy is taught by Socrates in any of his answers; whether he answers anything at any point otherwise than by way of reminiscence and really out of his mind, as the reasonable questions of Socrates fall like water on the reed-ground. By putting to the slave a carefully prepared series of questions, Socrates leads him to recognize that double the square of any straight line is not the square on double the line, but the square on the diagonal of the original square.[1]

[1] *Meno*, 82 *B*-85 *B*.

Surely, the so-called irrationals must be rational somehow, if the mind has contemplated their patterns in the world of ideas, and if it " remembers " them when confronted with their actual geometrical illustrations. " See him now; how he remembers in the logical order, as he ought to remember." And again, " Just now, as in a dream, these opinions have been stirred up within him." The slave will perform, Socrates assures us, similar acts of reminiscence on demand, with other geometrical problems, with any and every problem whatever.

The same idea is also expressed in the *Phaedo*, when we are told that the theory of an innate knowledge independent of our experience here holds " not a bit more about two equal lines than about the absolute Beauty, and about what is absolutely just and good, and about all things whatever "; for, if it is admitted that we are born already possessed of certain mathematical principles apprehended before birth, it is just as true to say that " we have knowledge, both before and immediately upon our begetting here, not merely about the equal, and the greater, and the less, but also about all other things of the kind." [2] This doctrine that all knowledge is recoverable, by the way, may be considered Pythagorean, if we generalize the teaching of the brotherhood about the memory of past lives.[3]

There is another reason also for the recognition of the necessity of the irrationals, and consequently of their capacity for rationality. In outlining the qualifications and duties of the members of the " nocturnal council " which looks after the public safety, Plato points out that public piety must be their primary concern. But this piety requires the replacement of the Olympian gods in the public cult by the heavenly bodies which exemplify the wisdom of the Creator by their conformity expense of the doctrines of the latter, as the Platonic views to mathematical law. This regularity can be ascertained by observing the rhythmic periods of each planet's motion and by expressing them in terms of the period of any other. For this

[2] *Phaedo*, 75.

[3] Cf. A. Cameron, *The Pythagorean Background of the Theory of Recollection*. (Wisconsin, 1938.)

purpose, however, something more than the arithmetic of integers is needed, because the periods of the heavenly bodies, when compared, are not always commensurable. Hence the necessity of studying integers and surds. But these numbers must be considered as pure and not as embodied, and an account of their derivation must be given before discussing their application.

Plato may have approached this problem by a numerical interpretation of the discoveries of Theaetetus and Eudoxus, involving the reversion of the relative priority of geometry over arithmetic. This is, at any rate, the position reached in the *Epinomis*, which goes beyond the mathematical considerations of the *Republic*. "The first and most important [study] is of numbers in themselves, not of corporeal numbers, but of the whole genesis of the odd and even, and the greatness of their influence on the nature of things." [4] There come next in order geometry and stereometry, which prove to be "an evident likening of numbers unlike one another by nature." The following fragment of Archytas shows that this view was predominant at the time: "I think that in respect of wisdom, arithmetic surpasses all the other arts, and especially geometry, seeing it can treat the objects it wishes to study in a clearer way. Where geometry fails, arithmetic completes its demonstration in the same way, even with regard to figures, if there is such a thing as the study of figures." [5]

An illustration of the prevalence of arithmetic over geometry may be found in the Platonic notion of indivisible lines. It may be remembered how the Pythagoreans would fill the geometrical continuum with points defined as monads having position. But this view, which implies that a point has a minimum volume, had been obliterated by Zeno's argument of the unlimited bisection of the straight line, and of the impossibility of making a line longer, or a volume bigger, by adding one point to it. Plato did not give direct answers to the difficulties of the Eleatic. But he objected to the Pythagorean conception

[4] *Epinomis*, 990 *C*.

[5] Diels, *Vors*. p. 337.

of the point, as he did to the Democritean notion of the atom, which appealed too strongly to materialistic sense experience. He would not even think of a point in its own right; for he considered the genus of points a " geometrical fiction." But he would speak of a point as the beginning or the principle of a line, and he would use the term " indivisible lines " in the same sense.[6]

Points and indivisible lines could scarcely have been considered by Plato as being identical. In fact, the last Aristotelian text just referred to implies a radical opposition between them, if the Greek expression τούτῳ μὲν . . . τοῦτο δὲ is properly interpreted. As regards the point, there is no difficulty in accepting it as a principle (ἀρχή) rather than an element (στοιχεῖον) of the line. But it was unnecessary for Plato to consider the indivisible lines (ἀτόμους γραμμάς) in the more recent sense of the Democritean atoms, as the minimum of the secable magnitudes. The word ἄτομος already existed in the Greek vocabulary in the sense of something which is not actually divided, which is not composed of actually separate parts; but it did not imply that a magnitude which was not divided was necessarily indivisible. It is in this original sense that the word ἄτομος must have been used by Plato, as it appears from the only passage of the Dialogues[7] in which it is referred to explicitly. Consequently, Plato would consider his ἀτόμους γραμμάς not as indivisible lines but as undivided lines, as magnitudes which are not reduced to a sum of smaller parts, a conception which agrees fully with his idea of the point indicated by Aristotle himself.

In this sense, as principle of a line, the point cannot be a static notion. In fact, according to Aristotle the Platonists taught that " a moving line generates a surface, and a moving point a line."[8] Thus a line is not made of points added together but is generated by the fluxion of a point; at the same time, however short a line may be, it cannot be divided into

[6] Aristotle, *Met.* 992 *a* 20.
[7] *Sophist*, 229 *D*.
[8] *De Anima*, 409 *a* 5.

elements which are not themselves lines: it is a continuum. More generally, the continuum would be produced by the flowing of some undetermined element like the infinite, rather than by the actual juxtaposition of a large aggregate of actual indivisibles. This would be true of numbers and of geometrical magnitudes as well, on the ground of the identification of the χώρα with the infinite, and of the parallelism established by Plato between numbers and figures.

It follows that the generation of the continuum, both numerical and geometrical, has to begin with some element. The principle of number and the principle of a line have to be something; they cannot be nothing. Hence, if the notion of the infinitesimal is involved in any sense in these considerations, it need not be as an actual indivisible, or as the actual and final result of a continued subdivision. It should rather be considered like the undivided genetic element of a magnitude which can be made as small as we please; or again, like the "intensive" infinitesimal suggested by the idealist thinkers of the nineteenth century. It is therefore difficult to accept Taylor's opinion that the Platonic conception of the point as principle of a line implies the idea of beginning the series of numbers with 0 instead of with 1. Besides, the Greeks had no conception of 0 as a number.

It should not be asserted [9] either, that the Platonic doctrines involve the first clear conception of the infinitesimal; though it may be said that Plato "was thinking out the solution of problems that lead directly to the discovery of the calculus." [10] Nothing in his writings suggests that Plato could supply either a clear sensory interpretation or a precise logical definition of the intuitive conception of the infinitesimal which was used by the discoverers of the calculus. As to the modern logical idea of the infinitesimal, which depends on the notions of the derivative and of the limit, neither Plato nor his successors could possibly have thought of it. At that time there was no general

[9] Hoppe, *Zur Geschichte der Infinitesimal Rechnung*, p. 152.
[10] Marvin, *The History of European Philosophy*, p. 142.

concept of number in Greek mathematics, and consequently no notion of a continuous algebraic variable upon which could be based the mathematical concept of limit.

It is significant, however, that the intuitions of the infinitesimal and the continuum, vaguely indicated by Plato, were developed by his early successors in the direction of the indivisibles or fixed infinitesimals, which are unacceptable to modern analysis. In particular, Xenocrates maintained the existence of indivisibles, and established for them a definite doctrine which prompted the critical refutation of the Peripatetic tract *On Indivisible Lines*. But Aristotle himself had already pointed out [11] that indivisible lines must have extremities and cannot be points; while the definition of a point as the extremity of a line is unscientific. Modern mathematics upholds Aristotle in his vigorous opposition to infinitesimal line segments, because it has been unable to offer a logical elaboration and a satisfactory definition of such indivisibles. Moreover, even though this notion was destined to play an important part in the early development of the calculus, it was definitely abandoned when modern analysis achieved a rigorous formulation of its foundations.

II. FUNCTION OF THE ONE AND THE DYAD

It was from Pythagorean premises that Plato attempted the generation of the arithmetical continuum. Traces of his views on this matter are found in certain later Dialogues, and mostly in the *Philebus*, which is considered as forming the transition to the final views of Plato concerning forms and numbers. In this dialogue, which recounts the Pythagorean opposites, the limit and the infinite, the one and the many, the ideas are termed ἐνάδες or μονάδες; and the elements of things are given as the limit and the infinite,[12] in true Pythagorean fashion.

This conception without doubt underlies Plato's fundamental doctrine. For we have it on the authority of Aristotle and

[11] *Topics*, 141 *b* 21.
[12] *Philebus*, 24 A.

Hermodorus [13] that Plato posited the πέρας and the ἄπειρον as the two elements (στοιχεῖα) which are present in the ideas and in all existing things. The πέρας, which is the limit or the one, represents unity (ἕν) and is the form-giving or active element. The ἄπειρον, which is the infinite or the many, represents a formless matter (ὕλη) and is the form-receiving element. So that ideas, numbers and sensible things alike, are generated by the combination of the πέρας and the ἄπειρον; that is, from the infinite and through the limit. In this sense the elements of numbers are the elements of things. These views may be related to the doctrine of *the same* (ταύτον) and *the other* (θάτερον), which is mentioned in the *Sophist*, and also in the *Timaeus* (35 *A*), where being is stated to be a blend of the same and the other.

The operation of the limit shaping the infinite requires further elucidation, especially as Aristotle claims that it produces the lines, surfaces, and solids [14] and that it accounts for the numbers. It stands to reason that the limit by itself is sterile. For it is impossible to explain how number one can be made to repeat itself and produce other numbers, just as it cannot be explained how one point by itself may be moved into the necessary reiteration for the generation of a line. In other words, with the limit alone we cannot show how mathematical operations are possible, how mathematics can be extended to the sensible world, and how the general problem of the one and the many can be solved.

To be sure, even the participation of the mathematical numbers in the ideal-numbers or number-forms cannot account actually for the various arithmetical operations. Indeed, the forms of numbers are mathematically impotent. The union of the idea of 2 with the number one or the limit cannot take place, as it would bear no fruit: for it would leave us simply with the idea of 2 or twoness, *and* the number one uncombined and unintegrated.

For these reasons, another principle of generation is needed

[13] Simplicius, *Commentary on Aristotle's Physics*, fol. 54 *b* and 56 *b*.
[14] *Met.* XII, 9.

to account for the real and the apparent. This other element is the *dyad*, which is a principle of plurality, movement, change, and becoming. In the physical world, the function of the dyad is to produce the plurality and spatiality of phenomena. By identifying extension with the stuff of sensible things, the cosmogony of the *Timaeus* reduces to the dyad the solid and corporeal nature of the universe. In the world of ideas it may be said that the dyad gives rise to their multiplicity and colors their relation with a continuity which is not unlike that of numbers. It is by virtue of the dyad that the mind glides without breaks from one idea to another.

In the logical realm, the function of the dyad and its limitation by the one, as indicated in the *Sophist*, tend to give a mathematical color to the process of definition. "By the segregation of more specific within more general ideas, we close in upon the specific form by bracketing it, as it were, more and more narrowly, till we have excluded from it everything that is not its proper essence; just as we approximate to our irrational numbers by a progressive reduction of the values that are greater and smaller than the one in question." [15] Thus the essence of a thing is reached and expressed by a process similar to the kind of mathematical division which approximates to the value of a surd, as will be shown presently.

More specifically, the dyad is the principle of numerical multiplicity and geometrical extension. Thus we are told that its combination with the limit produces all the even numbers by multiplication and all the odd numbers by the operation of the limit which stops, equalizes, and stabilizes the propensity of the dyad to multiply.[16] But it may be said also that the cooperation of the one with the great-and-small yields not only the rational numbers but also the irrationals. Let us see in detail in what way the combination of the dyad with the limit or the one generates the numbers in a natural manner.

This construction [17] of the arithmetical continuum requires

[15] Fuller, *History of Greek Philosophy*, vol. II, p. 391.
[16] *Cf.* Aristotle, *Met.* 999 *a* 9, 1002 *a* 15, and 1080 *b* 11.
[17] *Met.* 987 b 14.

primarily a clear understanding of Plato's conception of the infinite: he considers it as an undetermined dyad (ἀόριστος δύας) and gives it the strange name of μέγα καὶ μικρόν, the great-and-small. This dyad involves a double function of multiplication and division, but without an upper or a lower limit, in keeping with its indefinite nature. Further, it has many species, such as long and short, broad and narrow, high and low, more and less.

The dyad is undetermined because it is not any being in particular. That is probably why Aristotle identified it with not-being.[18] The following fragment of Hermodorus throws some light on this identification: " Those things which are spoken of as having the relation of great to small, all have the ' more and less,' so that they can go on to infinity in the direction of the ' still greater ' and the ' still less.' In the same way, the broader and narrower, the heavier and lighter, and everything which is spoken of in that way can go on to infinity. But what is spoken of as equal and at rest and attuned, has not the ' more and less ' as their opposites have. There is always something more unequal than what is unequal, something more in motion than that which moves, something more out of tune than that which is out of tune. Hence that which is of this nature, is inconstant and formless and infinite, and may be called ' not being ' by negation of ' being.' " [19] In this sense, the indefinite continuum of the more-and-less is not " nothing " but rather it is " not anything " in particular.

It remains to explain why the infinite is a duality, an undetermined ratio which connotes a formless multiplicity, and why this duality is a great-and-small. The available references to Plato's views on this matter give neither the whole of his thought nor the reasons for his dissatisfaction with the Pythagorean conception of number. In the absence of specific texts one has to turn to speculation. Some modern writers like Burnet, Milhaud and Stenzel have rightly suggested that the

[18] *Physics*, 192 *a* 6.

[19] Simplicius, *Commentaries on Aristotle's Physics*, *Vors.* 247 (Diels).

great-and-small is somehow connected with the irrationals, especially as it may help to obtain their values by successive approximations to a limit. But these views are considered by Taylor, Rey and Toeplitz as too general and conservative to be fully satisfactory. In fact, certain series converge to a limit smaller than the unit (like $1, \frac{1}{2}, \frac{1}{4} \ldots \frac{1}{2^n}$); and certain others converge to a limit greater than the unit (like $1, 1 + \frac{1}{2}, 1 + \frac{1}{4} \ldots 1 + \frac{1}{2^n}$). In both cases the series converge in a simple sense which does not justify the Platonic notion of the great-and-small. Hence the assumption that Plato must have thought of a specific way of constructing infinite converging series.

Working on this view, Taylor [20] suggested an interpretation of Plato's probable method by using the famous passage in the *Epinomis* about the generation of numbers,[21] and various other considerations of the Platonic dialogues and of later commentators. He took into account, in particular, the properties of the *side* and *diagonal* numbers, and the rule given by Theon of Smyrna [22] for calculating rational appproximations to $\sqrt{2}$ with increasing accuracy.

From these considerations, Taylor concludes that the substitution of a dyad to the single infinite is due to the necessity of providing a means of checking the interval within which falls the error of an approximation. Moreover, this dyad is a great-and-small, because it is the limit to which one series of values, all too large, tends to decrease, and also the limit to which another series, all too small, tends to increase. As it is impossible to find an identical value for two successive convergents in the case of an irrational, there is always inequality or tension between the great and the small; or again, an unrationalized

[20] *Mind*, t. 35, pp. 419-440 (1926) and t. 36, pp. 12-33 (1927). These articles are reproduced in his *Philosophical Studies*, to which our quotations refer. Against the general opinion, Taylor regards the *Epinomis* as a genuine Platonic writing. The authenticity of this work, however, does not affect the interest of this interpretation, inasmuch as the *Epinomis* is undoubtedly of strict Platonic inspiration.

[21] *Epinomis*, 990 *C*-991 *B*.

[22] *Expositio* (ed. Hiller), p. 43 sq.

matter in the irrational number. It is the function of the formal element of number, the one, to equalize (ἰσάζειν) the great and the small; but it is not as successful for the irrationals as it is for the rational numbers where the tension between the great and the small vanishes.

The specific function of the one to equalize the great and the small is expressly ascribed to Plato by Aristotle himself.[23] It is indeed a Platonic conception which appears also in many other Dialogues. In a passage of the *Statesman* referring to the science of measure or metretic (μετρητική), we are told that the great and the small must be appraised not only by their reciprocal relation but also by reference to the just measure (πρὸς τὸ μέτριον). What is great is not so with reference to the small only, but also with reference to the just measure, and the same is true for the small.[24]

Hence there are two kinds of metretic: one considers the great and the small with reference to the just measure; the other considers them simply with reference to one another. The former may well be assimilated to dialectic, while the latter is identified with mathematics. In spite of this distinction, metretic does introduce the idea of a common limit between the great and the small, which can be applied to the problem of the generation of numbers. This application is the more permissible when we consider that this problem is not exclusively mathematical, and that dialectic has some bearing on the foundations of mathematics.

III. VALUE OF THE PLATONIC METHOD

Assuming that Plato did think of such a method of rationalizing the irrationals by means of the one and the dyad, then he should be credited with the first discovery, though in an incomplete form, of the *real numbers* conceived as the common limit of two infinite convergent series. In this connection, Taylor remarks that the Platonic theory must have been inspired by the same desire for pure rationality which has led to the arith-

[23] *Met.* 1081 *a* 24.

[24] *Statesman*, 283 *C*-284 *E*.

metization of mathematics in modern times. "The object aimed at, in both cases, is to get rid of the dualism between so-called 'continuous' and 'discrete' magnitude. The apparent mystery which hangs about the 'irrationals' is to be dispelled by showing how they can be derived, by a logical process which is transparently rational at every step, from the integers and the 'rational fractions,' or λόγι of integers to integers. It is precisely the same process, carried further, which we see in modern times in the arithmetical theory of the continuum, or in Cantor's further elaboration of an arithmetic of the 'transfinite.' In all these cases, the motive for the construction is to get rid of an apparent mystery by the discovery in the seemingly unintelligible of the principle of order of which the integer-series is the perfect and ideal embodiment." [25]

The analogy, however, should not be pushed too far; especially as the knowledge of the Greeks about the surds of a higher order must be accepted only with strong qualifications. It is true that the study of the solids initiated by the Pythagoreans, and developed diversely by Democritus and by Plato himself, became an important science with Theaetetus and Eudoxus, who dealt with problems involving cubic roots. Hence the demand for a method of approximating cubic roots from the sides of the great and of the small alternately, as in the case of the quadratic surds, must have been suggested by the rise of stereometry in the Academy.[26] The simplest illustration of the general problem involved was offered by the *Delian Problem*: in fact, the duplication of the cube is reducible to the construction of a series of approximations to the real value of $\sqrt[3]{2}$ from its two sides alternately.

But the actual construction of these convergents requires certain algebraical methods which were not possessed by the Greeks, while the absence of an efficient numerical symbolism and of an operational system of position increased the difficul-

[25] *Philosophical Studies*, p. 120.

[26] The prominence given to the question of irrational μήκη in the *Theaetetus* may be taken as an indication of the influence these views had on Plato's conceptions.

ties of their arithmetical manipulations. Thus Greek mathematics has not even examples of the extraction of a cube root fully worked out by means of the expansion of $(a + b)^3$, corresponding to the method for square roots elaborated by Theon of Alexandria.[27] Hence it may be doubted that there was an arithmetical construction for $\sqrt[3]{2}$ known to the Academy, even though Plato may have conceived its possibility on the ground of the analogy offered by the numerical treatment of quadratic surds.

The earliest attempt which has been preserved is the evaluation given by Archimedes.[28] All the other solutions known to us are geometrical or empirical in character, and even the author of the *Epinomis* admits that the numbers with irrational cube roots " which have been made unlike, are likened by another art, namely what its adepts called stereometry." Moreover, there is no indication that Plato considered irrational roots (or even rational for that matter) of orders higher than the third. He was too much dependent on his spatial intuition to imagine any theories of numbers entirely independent of geometry. Hence, he could not have visualized a general and independent method for the generation of the arithmetical continuum: at best the *Epinomis* hints at a program of research more comprehensive than hitherto, for the immediate future.

The generation of the irrationals, however, does not cover all the aspects of the problem of number. So far, the integers and their order have figured as given data in the construction of the continuum. There remains to be considered the manner in which the determination of the great-and-small by the one affects the generation of the integers themselves. Plato must have considered his problem in this perspective, for in his criticism Aristotle deals with it always in this form.

On the other hand, there is a characteristic passage in the

[27] *Commentary on Ptolemy's Syntaxis*, 469.16-473.8 (ed. Rome). The extraction of the cube root of 100 given by Heron in his *Metrics* (III. 20) is a description of an empirical method with no reference to a generalized formula.

[28] *The Measurement of the Circle*, III.

Epinomis (990 *E*), concerning the production of the integers, which throws much light on the Platonic method. It shows that successive multiplication of 1 by 2 gives the geometric progression 1, 2, 4, 8, representing respectively a point, a line, a square and a cube. Then comes a reference to the arithmetic mean, which is equidistant from two given terms, and to the harmonic mean, which exceeds one term, and is exceeded by the other, by the same fraction of each term. By reducing fractions this gives the numbers 9 and 8 respectively. Here it may be observed that 8 was already given as the cube of 2, and that there is no indication as to the generation of the other integers. A more important remark, which will be elaborated further in this discussion, is that Plato favors distinctly the process of duplication in the generation of numbers.

This is also the case with the construction of the world-soul. Here Plato used two basic geometric series (1, 2, 4, 8), and (1, 3, 9, 27); and he filled up the intervals between these numbers with arithmetic and harmonic means, so as to get a series of thirty-four terms.[29] It is usually thought that this construction is intended to represent the notes of a musical scale having a compass of four octaves and a major sixth. It is more probable, however, that it has less to do with music than with Plato's religious background and with his ideas about numbers.

It may be safely suggested that Plato thought of constructing the arithmetical continuum by means of one single process. In that case he must have rejected the process of addition, though it yielded the integers in a simple and direct way, because it did not account for the irrationals, which are far more numerous than the rational numbers. The unity of the generation of all numbers could be saved, however, if the integers could be obtained by combining the one with the dyad, a method which already accounted for the irrationals. The idea of constructing the integers by means of the one and the dyad

[29] *Timaeus*, 35 *B*-36 *B*. Cf. also Bury's notes in his translation of the Dialogue (ed. Loeb, pp. 66-71); Taylor, *Commentary on Plato's Timaeus* (pp. 136-137); Cornford, *Plato's Cosmology* (p. 67 sq.).

may have originated in the simple remark that the values to which special pairs of infinite series converge need not be irrationals. The process of unending bisection emphasized by Zeno makes it apparent: the sum of the segments obtained by the indefinite bisection of a given length, is that finite line; and once the real numbers are conceived as limits of series of irrational numbers, it is natural that this conception should not be confined to irrationals only.

The elaboration of this process is necessarily more complex than the additive method proposed by the Pythagoreans and adopted later by the Peripatetics. It involves not only the combination of the one and the dyad but also the operation of a particular aspect of the dyad, namely, the reciprocal functions of doubling and halving which yield the simplest numerical ratios. Beginning from the unit, successive duplications produce the first even numbers in geometric progression. Then, the first odd numbers are obtained by halving the sum of two successive even numbers respectively greater and smaller than the odd numbers obtained. This method, of course, does not give the first integers in their natural order: hence Aristotle's criticism is justified in so far as it concerns this feature of the doctrine.

This procedure, according to Taylor, involves a double confusion: that of the integers with the rational real numbers and that of the integers 1 and 2 with the one and the dyad. Consequently, the function of duplication is assigned to the undetermined dyad, although it belongs really to the integer 2 or auto-dyad. It is difficult to agree fully with these views. In the first place, if such an elegant interpretation of the Platonic construction of the integers by means of the one and the dyad can be given, there is no reason why it should not be extended to fractions as well. These could be obtained by using the process of halving; and also by taking the arithmetic mean of successive rational numbers, one greater and one smaller than the resulting fraction. These numbers could be two integers, an integer and a fraction, and two fractions. The indefinite repetition of these operations would yield all the rational real numbers.

As regards the function of duplication, it can be rightly assigned to the dyad, for it need not belong to the auto-dyad. Plato himself could not confuse the 2 in itself with the great-and-small. To identify the expansile and contractile nature of the latter with the changeless and absolute character of the former would obliterate what seems to be one of the most remarkable Platonic intuitions, and would introduce confusion into a theory which otherwise seems relatively clear.[30] In order to make the distinction between the auto-dyad and the dyad more significant, the first may be identified with *twoness* and the second with *twiceness*.[31] Now, twoness is the actual essence of the mathematical number 2, while twiceness is the potential ability of any mathematical number to proceed from itself to another number and to be integrated into measures and formulas. Hence, twiceness is neither a limit, nor a measure, nor a magnitude, nor a quantitative determinant of any kind. By its agency, however, by the various aspects of its functions (greater, less, doubling, halving), and by its combination with the one, twiceness produces all the real numbers. This interpretation, which is accepted by several modern critics, brings the dyad of the *Philebus* into the mathematical fold.

These remarks may have their counterpart in the generation of the geometrical magnitudes: the undetermined character of the formless space (χώρα) favors the production of any given ideal magnitude, whether rational or irrational, by means of a double series of greater and smaller magnitudes which oscillate about it, until the limit, or the one, ultimately equalizes them and produces thereby the given magnitude. Hence a possible reason for the Platonic confusion between ἀριθμοί and μεγέθη which Aristotle distinguishes persistently. It remains to say that the results obtained by the combination of the one and the dyad are not identical; otherwise the numbers (and magnitudes) would be alike. While the operations involved are identical, the results are analogical but different. Hence the one

[30] This confusion of the dyad with 2 may account for some of Aristotle's criticisms of the Platonic conceptions.

[31] Cf. Cook Wilson, *Classical Review*, vol. 10 (1904).

and the dyad alone suffice to account for every one and all numbers (and magnitudes), and the auto-dyad need not appear in the generation of the arithmetical continuum.

The Platonic method of deriving the integers, however, suggests two practical remarks. One is that addition is not avoided in the process described; for the arithmetic mean, which yields the odd numbers, requires the addition of two successive even numbers before halving their sum. Hence this indirect way of obtaining the odd numbers does not justify technically the rejection of the additive process. The other remark concerns the order of the operations involved in the generation of the integers, which seems quite arbitrary in the Platonic construction. Here, the sequence of the first ten integers involves three duplications to begin with, then one mean, then one duplication, then two means, then one duplication and one mean finally. But there is no reason why 3 should not be formed before 8, and 7 after 10, and there are no indications about the integers after the decad. In fact, the Platonic sequence of the first ten integers makes it impossible to formulate a general rule for the order of the operation yielding the integers, and consequently a law concerning their succession. Yet, such a law could be expressed by taking alternately the double and the arithmetic mean, beginning from the first even number. This is not, however, the method implied in the *Epinomis*, which complicates the whole procedure by assigning a function to the other mathematical means in the generation of the integers.

Whatever be the actual technical details of Plato's method, its inspiration is clear: it is an endeavor to reconcile the incalculable with the calculable, to integrate all types of numbers and magnitudes into one single genus, and thereby to make possible to all the application of the same operational methods. This attempted unification of the various species of quantity involves an artificial generation of the integers, a possible construction of the irrationals by means of series, and a closer assimilation of numbers and geometrical magnitudes. The interpretation of Platonism which has just been discussed

makes it possible to ascribe to the founder of the Academy a primitive vision of those remarkable anticipations of later developments. But it is true that neither Plato's extensive writings nor those of his successors contain any direct and final references about these matters. Even books V, VI and X of Euclid's *Elements* cannot be considered as a strict exemplification of the relation between arithmetic and geometry which Plato may have visualized. On the other hand, the Greeks had no means of establishing a theory of series with its attendant notions of limits and infinitesimals.

As regards the construction of the integers, it has little or no practical value. But it involves two important principles: one is the necessity of a strict derivation of the integers from more fundamental notions; and the other is the logical independence of multiplication from addition. Plato may have perceived both of them, but he had no means of elaborating them further and of discussing them in their mathematical setting. Hence he could not attempt to analyze number and its properties by means of its purely logical elements, as modern mathematical logic tries to do. Instead, Plato proposed to justify number with the help of ontological arguments involving references to an ideal world of forms. This endeavor, which led to the identification of the forms with numbers, was forcefully criticized by Aristotle. Let us now consider the alternative doctrine he proposed.

IV. THE ARISTOTELIAN SOLUTION

The views of Aristotle on the generation and nature of mathematical objects are only an aspect of his fundamental controversy with Plato's doctrines. Both place mathematical objects in an intermediate position. But while Plato considers them a distinct class of objects between ideas and particulars, Aristotle does not assign to them a separate existence. For him they are intermediate in so far as the mind places them between the sensible things out of which they are imagined by abstracting the totality of their sensible qualities, and the

generic essence of the things, which is reached by a further abstraction eliminating even the extension of their intelligible matter. In other words, Aristotle denies that mathematical objects, as universals, are real substances. But he considers them as non-sensible substances, and thus justifies their empirical foundation and their incorporation as subjects into the various propositions forming the science of mathematics.

These remarks are amplified with reference to figures and numbers separately. The mind apprehends geometrical objects by applying its power of abstraction to actual bodies, until the only accidents left are the quantitative and the continuous with their attributes as such. Even particular extension must be abstracted before the form is reached: as individual differences vanish, all that remain are universals, which are the proper objects of science.[32] But Aristotle would not agree with the Platonists who identify lines, planes, and solids with the numbers 2, 3, and 4 respectively;[33] for these geometrical objects would then lose continuity, which is their essential characteristic.

For Aristotle, then, the opposition between continuity and discontinuity accounts for the distinction between figures and numbers. It also explains why the notion of number is simpler for him than for Plato. While the latter conceives it as a combination of the limit and the infinite, Aristotle adopts the more conservative view of number as a collection of units, a discontinuous plurality. The notion of a unit is obtained by abstraction, and has its foundation in the ontological character of the unity of being. Numbers are obtained by adding one unit to another, and then by adding one unit to the preceding number;[34] so that numbers are nothing beyond the units of which they are essentially formed.[35]

For the synthetic, dynamic, and formal conception of number, Aristotle substitutes the notion of a whole formed of partitive elements, juxtaposited in succession. Hence he thinks of

[32] *Met.* 1036 *a* 11 and 1077 *b* 17.
[33] *De Anima*, 404 b 18.
[34] *Met.* 1080 *a* 30.
[35] *Met.* 1082 *a* 15.

number as an integral and discontinuous quantity. He does not follow the Platonic view of conceiving it as continuous and almost geometrical. Stressing the cardinal as against the ordinal aspect of number, he therefore criticizes the Platonists for counting one, two, three, and so on, without adding successively one unit to the preceding number.[36]

Another difference between Plato's and Aristotle's conceptions of number is that the latter dissociates number from the idea of ratio. Referring to the Platonic doctrine that numbers are the principles of sensible qualities, Aristotle criticizes the view that numbers should be called upon to define the essence of flesh and bones by asserting that these substances are composed, for example, of three parts of fire and two parts of earth. He justifies his criticism with the remark that such definitions do not involve numbers, but their ratios. For him, numbers are always collections of parts of fire, or of parts of earth, or of units. Hence, they cannot determine the essence of substances, which results rather from the ratio of the numbers considered.[37] For Aristotle, then, number is not a particular case of the more general notions of ratio, relation, or function. In fact, number and relation belong to two different categories of being.

With such essential distinctions between figures and numbers, Aristotle destroys the ontological unity of mathematics, which Plato tried to establish by means of his generalized conception of number. But he builds up the methodological unity of mathematics on the formal foundations of his theory of demonstration, which, in turn, finds its justification in the ontological principles underlying the whole of his doctrine. For Aristotle, the opposition between the continuous and the discrete in mathematics is only an aspect of the problem of the rationalization of the irrational, which remains a basic concern for him as it was for Plato. If the mathematical solution of the latter is to be rejected, something else must be offered in its place. Beyond mathematics, Aristotle reaches for an

[36] *Met.* 1082 *b* 28.

[37] *Met.* 1092 *b* 15.

answer to this riddle with his theory of the infinite, which reconciles the discrete and the continuous in the depths of ontology proper.

This doctrine, which is developed in the *Physics*, is naturally broached on the analysis of motion, an idea which involves matter, space, time and number. It is the perpetuity of matter and motion, the divisibility of magnitudes, the possibility of forming larger numbers by addition, and the analysis of time in respect to increasing and decreasing elements, which point to the infinite as a common constituent of these notions. And just as Aristotle's theory of motion is based on the distinction between act and potency, so his views on the infinite take into account the same distinction.

Experience reveals that change is an essential character of the universe: certain things have definite attributes, while others are in the process of gradually displaying them. From this angle, the difference between being and becoming calls for the distinction between act and potency. The process of becoming is called motion, which Aristotle defines as " the fulfillment of what exists potentially, in so far as it exists potentially." [38] Motion is considered here in its most general aspect, which covers both change of place and growth. Now, the whole purpose of Aristotle's discussion of the mathematical infinite is to show that infinity is a potency, that it is something which is always becoming without ever reaching a final form.

By considering infinite extension as a potency, it follows that the actual division of extension never yields a magnitude which may be considered as the smallest possible. For this reason, Aristotle rejects the notion of indivisible lines [39] which had become, as we have seen, a characteristic doctrine of the Academy. The Peripatetic tract *On Indivisible Lines* represents fairly well Aristotle's views on this matter, though it may not have been written by him. It argues against the theory of atomic magnitudes by showing their incompatibility with the principles assumed or proved in mathematics.

[38] *Physics*, 201 *a*.

[39] *Physics*, 206 *a* 17.

We are also reminded in the *Physics* that mathematicians never use the infinite as such, but simply require that the finite be as long as we please, and that they reduce all magnitudes by proportion to quantities they can handle more easily. In both cases, however, these geometrical fictions scarcely display the real connection between the mathematical infinite and the maximum magnitude of the universe. That is why it is suggested that this abstract and formal infinite, which satisfies the imagination, does not go beyond the νόησις, and should not even be confused with the potential infinite.

The Aristotelian theory of the infinite leads naturally to a specific doctrine of the continuous. This notion, which is an essential characteristic of motion, is analyzed in the sixth book of the *Physics* after the discussion of place, time, and change offered in the two preceding books. Aristotle based his definition of the continuous on the intuitive notion of a continuous magnitude, which requires that the boundaries of two consecutive or contiguous parts are kept together by coalescing into one and the same limit.[40] Hence the continuum is " that which is divisible into divisibles that are infinitely divisible." [41]

With these premises, Aristotle argues convincingly that every continuum must be divisible infinitely, and that the infinite divisibility of extension, of motion, and of time imply each other, with the infinite divisibility of motion as middle term between the other two. " The firmness with which he rejects any suggestion that a line can be divided without remainder into points, a period of time into moments, or a movement into infinitesimal jerks—and this at a time when thinkers of repute believed in all these things—seems to me to indicate that he had a more mathematical turn of mind than he is usually credited with. So far as we know, he was the first thinker who clearly stated the infinite divisibility of all continua." [42]

Notwithstanding some obvious difficulties in the details of the Aristotelian doctrine of the infinite, important consequences

[40] *Physics*, 231 *a* 24.
[41] *Physics*, 232 *b*.
[42] Ross, *Aristotle's Physics*, p. 70.

follow from its general pattern. Owing to the irreducible duality of the infinite, the continuum cannot be made of indivisible parts, and numbers cannot generate a continuum, inasmuch as there is no contact between them.[48] Hence the discreteness of number rules out the possibility of arithmetizing the continuum. Considering the restricted arithmetical technique available at the time, no adequate and effective arguments could be found in favor of the Platonic mathematical intuitions. The primacy of arithmetic maintained by the younger Pythagoreans, such as Archytas, and expanded by Plato into a metamathematical doctrine, expressed an attitude of mind and a pious hope, rather than a technical interpretation of current mathematical knowledge.

This situation was illustrated particularly well by the difficulties involved in the three famous problems of the quadrature of the circle, the trisection of the angle, and the duplication of the cube. Although Aristotle used principally elementary mathematics for his specific examples, he gave considerable thought to the question of quadratures, which correspond more readily to his problem of the infinite. In the four passages where he mentions the squaring of the lunes and the attempts to square the circle, he considers indeed the proposed solutions of these problems as instances of improper arguments, giving each time his reasons for his assessment. It may be said that Aristotle's criticism of these early methods of quadrature involves a rather rigid conception of the mutual relations of arithmetic and geometry. But it is in line with the strict requirements set down by himself for a good demonstration, even though he knew the Eudoxian method of exhaustion and its practical value.

It is not improbable that Aristotle's criticisms and his constructive views on the infinite, coupled with the refinement of the method of exhaustion, helped in the remarkable improvements of the Alexandrian period. In fact, Euclid and Archimedes used the constructions of Antiphon and of Bryson re-

[48] *Met.* 1075 *b* and 1085 *a*.

spectively by improving the proofs criticized by Aristotle. But neither the development of the theory of the higher curves known in his time, nor the approximate solutions worked out by Archimedes, nor even the rise of the calculus for that matter, affected adversely the promptings of Aristotle's logical acumen with respect to the problem of the continuum.

In these circumstances, Aristotle cannot be blamed for refusing to accept the Platonic conception of number and for considering the relations between arithmetic and geometry in the light of the actual technique of the mathematicians and of his own epistemology. His scientific perspicacity in these matters is proved by the perennial success of his views on the infinite and the continuous. And these held the ground until last century, when the continuum was defined more precisely in terms of the new concepts of number and of separation of classes. Even in this connection it can be maintained that the Aristotelian Organon can be correlated more readily than the Platonic dialectic with the logical refinements of the modern theories concerning the foundations of mathematics.

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THE NATURE AND EXTENT OF PHILOSOPHY OF NATURE

BY philosophy of nature we here understand human knowledge of sensory or changeable or natural things which is more perfect than the knowledge of them that is attained by ordinary experience and thought. Concerning the nature and extent of this more perfect knowledge of nature, there are eight questions to be decided: (1) Whether there is need for it? (2) Whether it is a science? (3) Whether it is a speculative science? (4) Whether it is of any value? (5) Whether it is in the order of wisdom? (6) Whether changeable being is its subject? (7) Whether it is one science or many? (8) Whether method is required to attain it?

I. Whether There is Need for Philosophy of Nature?

Difficulties

It seems that there is no need for philosophy of nature, for the following reasons.

1. There is no need for philosophic knowledge concerning the things which are immediately evident to us, and with which we are most familiar. Sensible things are immediately evident to us, and we are most familiar with them. Hence there is no need for philosophic knowledge of sensible things.

2. There is no need for philosophic knowledge concerning trivial things. Sensible things are the least of all things, because they come into being and cease to be. Therefore there is no need for philosophic knowledge of sensible things.

Solution

We have need for a thing when we lack something which we require for a special purpose, or which we desire for its own sake and the happiness that it gives. We need clothing and

shelter when we are cold, food when we are hungry, friends when we are lonely. If we possess only ordinary knowledge of sensible things, we lack a more perfect knowledge of them which is possible for us to attain, which we desire for its own sake and the happiness that it gives, and which we require for special purposes.

When we touch or taste or smell or hear or see an object, we are aware of it as an object that is acting sensibly on us, or that is simply given or presented to the mind. It is evident to us that these sensory objects exist, and we are conscious of the self and know that the self exists and is something sensible. By reflection and by means of the principle of non-contradiction, by which we know the truth that being is not not-being, we can distinguish between our knowledge and its object, and we know that sensible things have or can have existence of their own which is distinct from the being which they have in our knowledge of them. Moreover, we are sensibly aware of many of our own activities, such as seeing, eating, walking. We can remember some things as they formerly appeared and we know that they are not in all respects the same now as they were, but have changed and are changing. And so we are aware not only that sensible things exist and can be known by us, but also that they are not static but dynamic, that is, moving or changing sensibly.

When we think that we understand a thing, we do not wonder about it. We do not wonder that we get wet when we are out in the rain. Yet we often wonder about natural things, and this manifests that our ordinary knowledge of them is imperfect. We know only a few of them well, and of these we know only the more obvious aspects. We do not know exactly what they are or are made of, nor how or why they are produced and act as they do. Our knowledge of them for the most part is confused and disorderly, and is largely practical knowledge of the uses that we can make of them and of the things that we can construct from them.

But as our experience of natural things increases, we come to know more of them and to know them more distinctly. All

of them that we know are changeable and extended, and many of them are alike in other respects; for example, living things can somehow move themselves. Hence it seems that we can know all of them more or less in general. Moreover, the works of human art and skill, for instance, the automobile and the airship, manifest that we can know truths about sensible things that are hidden from ordinary knowledge. We can know the reasons for these works of human art, what they are, how they are made and why, and so it seems that we can know also some of the reasons or causes of natural things. These things generally appear to be and to act in an orderly way, for instance, according to motion and time, as the apparent movements of the sun and the moon, or according to location, as the arrangement of earth, water and air, or according to structure and function, as many plants and animals have similar structure and activities. Hence it is possible for us to put order in our knowledge of natural things.

Moreover, we desire to attain a more perfect knowledge of natural things. All of us admire these things, and are sometimes amazed at them and at the effects that are produced by them. We wonder at the processions of day and night and the seasons of the year. We marvel at plants and animals, at land and water, wind and cloud, sun and moon and stars. We are particularly astonished at ourselves. The fact that we are curious about these things manifests that we desire to know them better, and the delight that we derive from seeing and hearing them manifests that it is delightful for us to know them.

Furthermore, the things which we can make or do depend upon our knowledge of nature. The useful things which we can make, for instance, clothing or furniture, are made out of natural things such as cotton or wool or wood. We could not make these things if we did not know and have at hand something suitable out of which to make them. The beautiful things which we can construct, such as pictures or sculptures or music, are patterned more or less according to the colors and shapes and rhythms of nature. The things which we can do, for example, preserve our life and perfect ourselves in health

and happiness, depend upon our knowledge of ourselves and of other natural things. Our ordinary knowledge is not sufficient for making the more difficult things, such as a radio, and the better we understand ourselves the easier it is for us to control our desires and fears. Hence a more perfect knowledge of natural things is required for special purposes.

Thus it appears that when we possess only ordinary knowledge of natural things we lack a more perfect knowledge of them which is possible for us to attain, which we desire for its own sake and the delight that it gives, and which is required for special purposes. Hence there is need for knowledge of sensible things which is more perfect than the ordinary, that is, for philosophy of nature.

Reply to Difficulties

1. Even the things with which we are most familiar have aspects which are hidden from ordinary knowledge and which we desire to know more perfectly, for instance, what we ourselves are.

2. We are naturally inquisitive and desire to know more about everything that we can know more perfectly. We ourselves are changeable things, and we are especially curious about ourselves. We wonder how we came to be and how we operate, and whether we can cease entirely to act and to be. Hence there is need for philosophic knowledge of changeable things, particularly for knowledge of ourselves.

II. Whether Philosophy of Nature is a Science?

Difficulties

It seems that philosophy of nature is not a science or scientific knowledge, for the following reasons.

1. Science is knowledge of the reasons or causes of things, which are not perceptible by the senses. But philosophy of nature is knowledge of sensible things. Therefore philosophy of nature is not a science.

2. Science is knowledge of something that is certain. But sensible things cannot be known with certitude, because they are contingent. Therefore philosophy of nature is not a science.

3. Science is knowledge of something that is necessary or that cannot be otherwise. But sensible things are not necessary, because they are changing. Hence philosophy of nature is not a science.

4. Science is knowledge of universal truths. But sensible things are particulars, not universals. Therefore philosophy of nature is not a science.

Solution

The student of nature desires to perfect his knowledge of sensible things by attaining knowledge of them which is certain because the reasons for their being what they are and acting as they do are evident to his mind. This more perfect knowledge of changeable things is called philosophy of nature. But knowledge of this kind is science, that is, knowledge of something that is certain because a reason of its being, without which it cannot be, is known. Therefore philosophy of nature is a science.

Reply to Difficulties

1. We use the word thing to signify any object of thought, or any being which can be an object of our thought. Being, and distinct beings, and distinct modes of being and their kinds and reasons or causes, are not known by means of our senses alone, but by some other cognitive power, which is called intellect or reason and which seems to be nourished by the data of sensory experience. Philosophy of nature is knowledge of sensible things that are considered not merely as sensible but as intelligible. We say that we understand a thing when we know its reasons or causes, as we do when we have received a gift and know what it is and who gave it, why and how it was given or sent.

2. Sensible things are contingent in many respects. Yet they also appear to be and to act in ways that are regular, as heavy bodies tend to fall, and we have eyes with which we can see. Even contingent things such as our own walking and talking can be known with certitude when they are evident to us.

3. When we judge of anything that is evident to our mind, for example, that being is not not-being, or that sensible things exist, we know it with a necessity that is apparent in the very act of judging. Necessity in our knowledge is more manifest when we discover by reflection that we cannot doubt that a thing is what we evidently know it to be. Even changing things have some necessary aspects, and we have some necessary knowledge of them. While we are walking, it is necessarily true that we do not remain in the same spot. It is a necessary truth that changing things are capable of change, as it is necessarily true that what happens is not impossible, and that being is not not-being. It is not immediately evident to us what changing things are or are made of, why they are capable of change, what are the changes that occur in them, how and why they change as they do. These are points of inquiry in the course of philosophy of nature. Philosophy of nature is knowledge of the necessary aspects of sensible things which can be known by reason, presupposing sensory observation and experiment. By observation we know that sensible things are changing, and by reason we know that they are not constantly changing under every aspect. A door could not easily be opened and closed if it were not firmly hinged; and sensible substance, such as the self, has some stability.

4. It appears that only particular things, such as a man or a motion or an act of the mind, exist in nature. By means of our various senses and sensory perception, we can know different sensory aspects of the same object, for example, the color and figure and motions of the self. By sensory experience we can know the sensible aspects which are common to

many objects, for instance, the green of grass or leaves and the heat of fire. With the intellect we can know all of these objects under the aspect of being or that which is. We can know distinct beings and distinct states and modes of being, such as being in nature and being in knowledge, substantial being and accidental beings of various kinds. Here is something that is truly wonderful. When we pass from sensory knowledge to intellectual knowledge, we can know particular and changing sensible things in a way that is universal and necessary. We can distinguish a twofold necessity in these things, namely, the necessity of being or existence and the necessity of essence. In regard to existence, we know that although sensible things are changing they cannot both be and not be at once and under the same aspect. In regard to essence, we do not know what the individual as such is. But by abstracting from the individual differences of particular things, we can know more or less clearly what they are. We can know the essences or natures that are in things. Sensible things have some essential aspects that are similar in all; for example, all of them are changeable. There are other essential aspects that are similar in many of them; for instance, living things can move themselves. These essences exist in sensible things in a way that is particular and changeable and yet fundamentally universal inasmuch as they are intelligible. In our intellect, which can know these essences by abstracting them from their individual differences in sensible things, they exist in a way that is fundamentally universal inasmuch as we apprehend that which is or exists in many individuals in nature and is multiplied in them. It appears that the same essences can both be in nature and be in knowledge, according to distinct states of being, and be one in knowledge or one essence known, and be many in nature or exist in many individuals. These essences, considered simply, necessarily are what they are. Philosophy of nature is knowledge of universal and necessary truths concerning sensible things which are known not merely by observation and experiment but by intellect or reason.

III. Whether Philosophy of Nature is a Speculative Science?

Difficulties

It seems that philosophy of nature is not a speculative science, for the following reasons.

1. Philosophy of nature is scientific knowledge of sensible things. Scientific knowledge of sensible things includes all of the arts of making both beautiful and useful things, and the moral disciplines, and these are practical sciences. Therefore philosophy of nature is a practical science.

2. Speculative science is knowledge of the truth about things which is loved and sought for its own sake and the delight that it gives, not for the sake of doing or of making anything that is distinct from our knowledge of it. But philosophy of nature is sought in order to do or to make things that are distinct from our knowledge of them, for instance, in order the better to control our power of choice, and in order to make machines which we cannot make without special knowledge of natural things. Therefore philosophy of nature is not a speculative science.

Solution

We can know sensible things both speculatively and practically, as one can know music by appreciating and enjoying it or by knowing how to make musical compositions or to play musical instruments. Knowledge of the truth about the reasons of things, which is loved and sought for its own sake and the delight that it gives, is speculative science. Philosophy of nature is knowledge of the truth about the reasons or causes of natural things which is loved and sought for its own sake, because the student of nature chiefly desires to know the truth about nature, and because natural things such as stars, minerals, plants, and animals are things that we cannot make, but can only know more or less perfectly. Hence philosophy of nature is a speculative science.

Reply to Difficulties

1. Philosophy of nature does not include all of our scientific knowledge of sensible things, but only our speculative science of nature. Ethics and the various arts both liberal and mechanical are practical sciences, and are concerned with the things which we can do or make, not for the sake of knowing the truth about them, but in order to do or to make good or beautiful or useful things well.

2. Speculative science is not of itself useful or practical, because it consists in knowledge of the general truths about things, not in knowledge of how to make or to do particular things that are distinct from our knowledge of them. One who knows a speculative science is not for this reason a good man morally, nor a good artist or artisan, whereas one who has acquired a practical science can easily do or make things well in practice. Yet our speculative knowledge can be extended or applied in practice to the things which we can do or make, as we can use our knowledge of the stars in order to determine the direction that we wish to take when travelling at night. We use all of our knowledge in order to supply our various needs and to attain more perfect knowledge and happiness.

IV. Whether Philosophy of Nature is of Any Value?

Difficulties

It seems that philosophy of nature is of little or no value, for the following reasons.

1. Knowledge which has no practical purpose seems to be of no value. Philosophy of nature has no practical purpose, because it is a speculative science. Therefore philosophy of nature has no value.

2. Knowledge of the lesser things is of little value. Philosophy of nature is knowledge of changeable things, which are mere trifles. Therefore philosophy of nature is of little value.

Solution

By the value of a science we understand its dignity and utility. Philosophy of nature has great dignity and utility, and so has great value.

The dignity of philosophy of nature is apparent because, in the first place, it is a science. All science is of great dignity because it perfects our power of thought, which is the power by which we apprehend our end and direct all of our human activities. Science enables us to extend and perfect our knowledge beyond all that we can learn by ordinary experience and thought. It helps to satisfy our natural craving for knowledge, gives better order and greater certitude to our knowledge, and enables us to direct and to teach others and to solve difficulties inasmuch as it extends to the necessary reasons of things.

In the second place, philosophy of nature has great dignity because it is a speculative science. Speculative knowledge is sought and loved for its own sake, and thus is an end in itself. It is commonly admitted that ends have dignity, and this appears in the fact that we honor ends, whereas we praise means that are well suited for attaining ends. We praise a good instrument such as a good brush or chisel, but we honor a good artist and his work, and we especially honor a good man. The dignity of a speculative science is derived from the certainty and the nobility of its subject matter. Not all the subject matters of philosophy of nature are equally certain, that is, can be known with equal certitude by the power of our natural reason; but some essential aspects of natural things and some of their properties are absolutely certain. Natural things are not all of equal nobility, but living organisms and particularly human beings have considerable dignity because they all act for their own perfection as their own intrinsic end, and man acts with knowledge of his end and choice of the means by which to attain it. Inasmuch as philosophy of nature extends to living organisms, and particularly to man, it has very great dignity, because we can know with perfect certitude some truths about the self, such as the truth that we have a soul or

principle of life within us, and because we are natural beings who can perfect ourselves by controlling some of our activities.

The utility of philosophy of nature is manifested, first of all, by the fact that it enables us to attain higher speculative knowledge. It appears that sensible things are the kinds of beings which we know first, and some of their reasons are most evident to us. We know that human knowledge and needs and liberality are reasons for the works of human art, and that we seek food and shelter in order to preserve our life in comfort, and use our legs in order to stand and walk and our hands in order to grasp and move things. Through our knowledge of natural things we can attain some knowledge of more universal aspects of being, such as substance and causality, beauty and goodness and truth, and we can attain a better knowledge of being as such or that which is. Through our knowledge of motion and of changing things we can attain some knowledge of the ultimate cause of motion, that is, of God. In our knowledge of living organisms and of their nutritive and cognitive activities we have some knowledge of beings which are more or less independent of matter, and through this we can attain some knowledge of immaterial or spiritual beings.

In the second place, philosophy of nature is useful inasmuch as it is presupposed as known in acquiring the practical sciences and by these is extended to practice. For instance, a good understanding of man is required for the successful practice of medicine.

Reply to Difficulties

1. Knowledge which has no practical purpose may have value as an end. Philosophy of nature is an end rather than a means. Yet it is useful both for attaining higher speculative knowledge and for attaining greater perfection in practice.

2. Knowledge even of the lesser things is sometimes delightful to us and may have value either as an end or as a means to other knowledge and to other activities. From the manner in which natural things operate it appears that there are degrees of perfection among them, and that some are of greater

nobility than others. Animals act as if they have sensory knowledge, and in this respect seem to surpass the plants, while man seems to surpass all other natural things in knowledge and in his power to choose what he will do.

V. Whether Philosophy of Nature is in the Order of Wisdom?

Difficulties

It seems that philosophy of nature is not in the order of wisdom, for the following reasons.

1. Wisdom is knowledge that is both speculative and practical. But philosophy of nature is not practical knowledge. Therefore philosophy of nature is not in the order of wisdom.

2. Wisdom is knowledge of the highest or noblest things. But philosophy of nature is knowledge of the lowliest things. Therefore philosophy of nature is not in the order of wisdom.

3. Wisdom is scientific knowledge which proceeds from first principles of things that are evident and certain. But the first principles of natural things are not evident to us. Therefore philosophy of nature is not in the order of wisdom.

Solution

A man is called wise who can put in order the more difficult things, and who can judge of things justly, acknowledging to each what is its due. The word wisdom signifies speculative and practical knowledge in a high degree of perfection. In this sense of the term, philosophy as a whole is human wisdom, and its special parts are not wisdom, because the parts of philosophy are either speculative or practical sciences. But we also use the term wisdom in a restricted sense to signify the more perfect sciences, whether speculative or practical. A science is said to be perfect if it extends to the ultimate reasons or causes of its subject matter, because we can best judge of things and order them in view of their ultimate reasons of being. An architect who knows the reasons for all the parts of a building can judge it better than the artisan who does not know all the

reasons. The science which extends to the ultimate reasons of all beings, and which is called metaphysics or first philosophy, is speculative wisdom in the primary sense of the term. There are other speculative sciences which possess in a lower degree the perfections which metaphysics has in a higher degree, inasmuch as they extend to the ultimate reasons of particular kinds of things. These sciences are called wisdom in a restricted and secondary sense. Philosophy of nature extends to all the proper reasons or causes of natural things, because these are what the student of nature chiefly desires to know, and his wonder does not cease and his curiosity is not satisfied until he knows what natural things are and are made of, how and why they are produced and act as they do. Hence philosophy of nature is in the order of wisdom. It is a speculative wisdom, not the highest or most perfect.

Reply to Difficulties

1. Wisdom in the unrestricted sense of the term signifies perfection in knowledge, and is both speculative and practical, because perfect knowledge consists not only in knowing the truth about things but also in rightly ordering things to their ends. A perfect speculative science is wisdom in a restricted sense. Philosophy of nature is wisdom in a restricted and secondary sense, because it is a speculative science which extends to the ultimate reasons, not of all things, but of natural things.

2. Philosophy as a whole, and particularly metaphysics, is knowledge of the highest or noblest things which can be known by the natural light of human reason. Wisdom in a restricted and secondary sense is not knowledge of the highest or noblest things absolutely, but is knowledge of things which are more or less noble, that is, of real beings or ones which can have existence of their own and are not merely objects of our thought, or at least it is knowledge which is perfect in regard to its scientific form even though its object is not real, as is the case with logic. Philosophy of nature is wisdom only in a restricted and secondary sense. Inasmuch as it extends to sensible

substance and to living organisms, and particularly to man, it extends to the noblest of sensible things. These things are nobler than the quantities which are the proximate subject matter of mathematics, because mathematical quantities are those which can be understood apart from all activities and principles of action and even apart from the order which real quantities have to real existence. Hence philosophy of nature surpasses mathematics in dignity inasmuch as it extends to nobler things. But the certainty of the subject matter of mathematics is greater than the certainty of many matters of philosophy of nature, because natural things are contingent and variable in many respects, and in some respects have little in them that is intelligible, and so they are especially difficult to understand. The truths of philosophy of nature are discovered only after much experience and by the labors of many philosophers through many centuries.

3. Some first principles are evident and certain to us, such as being and its opposition to not-being, the sufficient reason or reasons of being without which a thing cannot be, and the principles of quantities, including points, lines, surfaces, and discrete quantitative units. Metaphysics and mathematics proceed from these principles when they are understood in a way that is appropriate to each science. It is not immediately evident to us what the principles of natural things are. But natural things both are and are extended or corporeal. Hence metaphysical and mathematical principles, understood in a restricted or special way, are true of natural things. In the course of philosophy of nature, near the beginning, the first principles of natural things are manifested mediately, by means of the principle of sufficient reason.

VI. Whether Changeable Being is the Subject of Philosophy of Nature?

Difficulties

It seems that changeable being is not the subject of philosophy of nature, for the following reasons.

1. The subject of a science is that with which the science is principally concerned. Philosophy of nature is principally concerned with something that is unchangeable, because it is knowledge of unchangeable truth about natural things. Therefore the subject of philosophy of nature is not changeable being.

2. In every scientific discipline we presuppose that the definition of the subject is already known. But we do not know what changeable being is. Therefore changeable being is not the subject of philosophy of nature.

3. Every science has one proper subject. But changeable being is not one, because it is a kind of substance that is corporeal and changeable both substantially and accidentally. Therefore changeable being is not the subject of philosophy of nature.

Solution

The subject of a science is that by reason of which everything is referred to that science, as things are referred to vision and not to hearing because they are colored and can be seen. Somewhat as sensory vision is determined with reference to that which is visible or colored, so also a science is determined with reference to a proper subject which is intelligible or knowable scientifically. The student of nature desires to know the truth about natural things, that is, to know what they are and are made of, what their principles are, how and why they are produced and act as they do. It seems that we cannot attain speculative science of individual natural things, because there are so many individuals that we cannot know them all individually, because the differences of individuals seem to be contingent and variable without limit, and because we recognize particular individuals by peculiarities which they happen to possess but do not know what this or that individual as such is.

But if we abstract from the individual differences of natural things and consider only the aspects in which all or many individuals are similar, we can attain intellectual knowledge of natural things that is more or less universal, and this knowledge is true of all or of many individuals, although it is not the

whole truth about any individual. We know, for instance, that natural things are things which can move or change sensibly, and that living things can somehow move themselves. We can attain speculative science of natural things by abstracting from their individual differences and considering their essential aspects. We have some evident knowledge of natural things inasmuch as they appear sensibly to us, and we observe that they are changing sensibly. It is the changing aspect of natural things that excites wonder and curiosity in the student of nature, and he desires to know the principles and causes of change and of changeable things. The fundamental principles of change are in natural things themselves, as we know from our consciousness of the self and of our own activities. We can attain speculative science of natural things if we proceed to investigate them inasmuch as they are changeable being, or that which has in itself fundamental principles of sensible change or motion; and this knowledge is called philosophy of nature. As things are referred to sensory vision because they are colored and can be seen, so things are referred to philosophy of nature because they are or pertain intelligibly to changeable being, not because they are individual sensible things of any particular kind. Hence changeable being as such, that is, as that which is fundamentally changeable, having in itself principles of sensible change or motion by which it is fundamentally intelligible or knowable speculatively, is the proper subject of philosophy of nature. Philosophy of nature is the science of changeable being, or our rational understanding of changeable being. All the definitions, divisions and conclusions of philosophy of nature are fundamentally in terms of changeable being. Changeable being is described and divided in terms of what sensibly appears or changes, and is defined in terms of the principles of change. Change or motion is defined in relation to the changeable, and the first principle of change is proved to be the Unchangeable. Every changeable being is proved to be a body or extended substance. Living bodies are defined in terms of the principles of self-movement, which is manifested sensibly by growth, and the cognitive and appeti-

tive functions are investigated and defined as operations of their sufficient principles in some living bodies.

Reply to Difficulties

1. We can distinguish between the subject matter of a science, which includes everything to which the science extends, and its proper subject, which is that by reason of which everything is referred to the science. The proper subject of philosophy of nature is changeable being as such, or as that which is fundamentally changeable and speculatively intelligible through its principles of change. The subject matter of philosophy of nature is any and every natural body and all the principles of change. A science is said to be principally concerned with its proper subject, not its subject matter, because its proper subject is that which is fundamentally intelligible in a scientific way. The first principles of a science are first principles of its proper subject, or the fundamental intelligible aspects of its proper subject, and everything that is in intelligible connection with its proper subject is determinable in a science. When changeable being is considered as it is intelligible, we can know some unchangeable truths about it, as we can know some unchangeable truths about artificial things. If we abstract from the individual differences of particular houses and consider what a house is as house, not as in this or that particular instance, we can know the essence of a house, and can say that a house is a structure suitable for abode or shelter. This is an unchangeable truth inasmuch as the essence of a house necessarily is what it is, and it is true of all particular houses, but it is not the whole truth about any particular house. In like manner philosophy of nature extends to the unchangeable aspects of changeable being. For the most part these aspects cannot be discovered merely by abstract reasoning, as mathematical truths can be discovered, but they are attained by reasoning upon the data of much experience of natural things, because the various essential aspects of changeable being are manifested to us through sensible appearances and sensible change. Moreover, many of the general truths

concerning various degrees of changeable being are true only of most but not of all individuals of the kind, because of the contingencies found in nature. Philosophy of nature also extends to those correlations of natural things which are necessary, inasmuch as a certain order exists among them.

2. In every scientific discipline we presuppose that the definition of the name of the subject is already known, and also that the subject as such is or is intelligible. Our scientific knowledge does not proceed from universal doubt or ignorance, but from certain truths which we have already attained. By the term changeable being we understand that which is fundamentally changeable and speculatively intelligible, having in itself principles of sensible change or motion. Inasmuch as we ourselves are changeable beings and are conscious of the self and of some of our activities and of some of their principles and reasons, it is most evident to us that this kind of thing exists and is intelligible. When we know that a thing exists but do not know exactly what it is, we define it imperfectly in terms of some effect which proceeds from it and which is more evident to us. For example, we speak of the sun as that which causes the light of day and the heat of summer. In like manner we define changeable being imperfectly in terms of principles of sensible change or motion or sensible appearance, because these effects of changeable being are evident to us. More illuminating definitions of changeable being and its various essential aspects are disclosed in the course of philosophy of nature.

3. The term changeable being is complex, but the concept signified by the term is simple. It is simply the concept of that which is fundamentally changeable, or of radical changeability. Whether or not there are many changeable beings of various kinds, and whether they are changeable substantially as well as accidentally, what the principles of change are, and what change itself is, these questions and many more are decided in the course of philosophy of nature. The basic concept of changeable being expresses a supreme generic formality of that which in nature is any and every natural body, which is

abstracted from individual differences and presupposed to be a kind of substance, and which is precisely the fundamentally changeable, or that which has within itself fundamental principles of sensible change or motion. This concept is a formal abstraction which expresses the whole essence of all natural bodies, but not wholly, and not as body or extended substance, but as changeable. It expresses changeable being not as closed or completely determined and completely understood, but as open to determination and more perfect intellection. It expresses the radically changeable that actually has within itself fundamental principles of change; that is capable of sensible change or motion; subject to change whether substantial or accidental; ordered to all the principles of sensible change; determinable and distinguishable according to a multitude of essential aspects of various orders and genera and species, which are the roots of properties, and of some proper accidents that are perceptible by our senses, all of which are intelligible and definable by reason of what it expresses: the fundamentally changeable. In this concept of changeable being all the conclusions of philosophy of nature are contained radically, and they can all be developed from it by means of sensory experience and correct reasoning.

VII. Whether Philosophy of Nature is one Science?

Difficulties

It seems that philosophy of nature is not one science, for the following reasons.

1. Philosophy of nature is knowledge of the reasons of changeable being. There are many changeable beings which are distinct and different from each other and have different reasons of being, for instance, living and non-living things. Therefore philosophy of nature is not one science, but includes many sciences.

2. The science of changeable being extends both to changeable substances and to changeable accidents. But substances and accidents are not known in the same manner, because

they are not in the same manner. Therefore the science of changeable being or philosophy of nature is not one science.

3. Everything to which one science extends is known in one and the same way. But changeable being is known in different ways, for example, by ordinary experience and correct reasoning, and by special experiments and with the aid of special instruments such as the microscope. Hence there are many sciences of changeable being.

4. Truths which are known in different ways pertain to different sciences. Truths concerning the reasons of changeable being are known in different ways. Some are known by reasoning from particular instances to a general rule or cause that is either proximate or ultimate, and others are known by reasoning from a general truth to a more particular or distinct conclusion. Hence there are many sciences of changeable being.

Solution

A speculative science is said to be one in a special sense, or ultimately specified, if it has a proper subject that is ultimately specified as intelligible, or knowable with regard to a special degree of intelligibility, not with regard to the manner of being which is proper to its subject matter. Things are said to be knowable in a special way because we do or can know them in a special way, as all colored things are said to be visible. Philosophy of nature has a proper subject which is ultimately specified as intelligible, namely, changeable being that is fundamentally intelligible through its principles of sensible change, inasmuch as it can be abstracted from the individual differences of natural things. When natural things are considered from a point of view in which we abstract from less than their individual differences, they are not intelligible to us speculatively, except as instances of a general truth. When they are considered from a point of view in which we abstract from more than their individual differences, they have a different degree of intelligibility; for instance, that which is proper to geometry. Within the first degree of abstraction, in which we abstract only from the individual differences of

natural things, the only principles of speculative science that can be abstracted from them are principles of sensible change. Hence the proper subject of philosophy of nature is ultimately specified as fundamentally intelligible in a special degree of intelligibility, and philosophy of nature is one science in a specific sense.

Philosophy of nature differs from mathematical physics when the subject matter of this science is considered from a mathematical point of view, or from a practical rather than a speculative point of view.

Reply to Difficulties

1. In the course of philosophy of nature it is demonstrated that there are many changeable beings of various kinds. All of these things are referred to philosophy of nature, even though their principles are different, because they are all intelligible to us in a special degree of intelligibility, which is that of changeable being which can be abstracted from individual differences.

2. Changeable substances and changeable accidents are known in the same degree of intelligibility when we abstract them only from their individual differences, somewhat as red objects and blue objects are known in the same way when we see them. The diversities between changeable substance and changeable accidents are diversities in the subject matter of philosophy of nature.

3. Everything that is known in one speculative science is known in the same way inasmuch as it is all known from one ultimately specified point of view, somewhat as all colored things are known from the point of view of vision. This example is defective because sensory vision cannot apprehend an object as simply and precisely as the intellect can, and because the senses cannot apprehend a scientific object which can be developed logically. In attaining philosophy of nature we presuppose the data of sensory experience of natural things, both the data of ordinary experience and the data obtained by special experiments and with the aid of special instruments,

such as the microscope and the telescope. All the data concerning changeable beings are referred to philosophy of nature because of its proper subject. The experimental sciences of nature are sometimes distinguished from philosophy of nature by reason of their limited subject matter or special methods. A speculative science, however, is specified by the degree of intelligibility of its proper subject, and its subject matter and methods are determined by its proper subject.

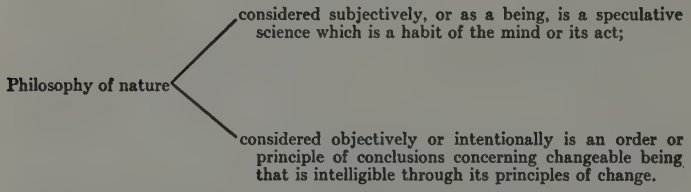
4. Just as we employ various real instruments, such as the scalpel and test-tube, in order to obtain more extensive and exact data concerning natural things, so also we employ various logical instruments, that is, various definitions, divisions, and demonstrations, in order to attain a better understanding of changeable being. All of our speculative science of natural things is attainable from one ultimately specified point of view, which is simply the view of changeable being that is obtained by abstracting changeable being from the individual differences of natural things and making it a scientific object by objective precision and formal abstraction. Philosophy of nature extends to many conclusions about changeable being, which is intelligible through its principles of change. These conclusions are not all of equal perfection or dignity when they are considered with respect to logic or with regard to their subject matter, but they all have the same degree of intelligibility inasmuch as they are all equally abstracted from sensible things.

There are many sciences of sensible things which are not purely speculative, but are more or less directly ordained to practice. These sciences are distinct from philosophy of nature, which is a speculative science specified by a general aspect of natural things which man cannot make but can only understand through its principles of change. Philosophy of nature extends to everything that is scientifically knowable about natural things considered as changeable, or having within themselves principles of sensible change. Furthermore, we may freely borrow truths which pertain to mathematics or metaphysics in order to perfect our understanding of nature.

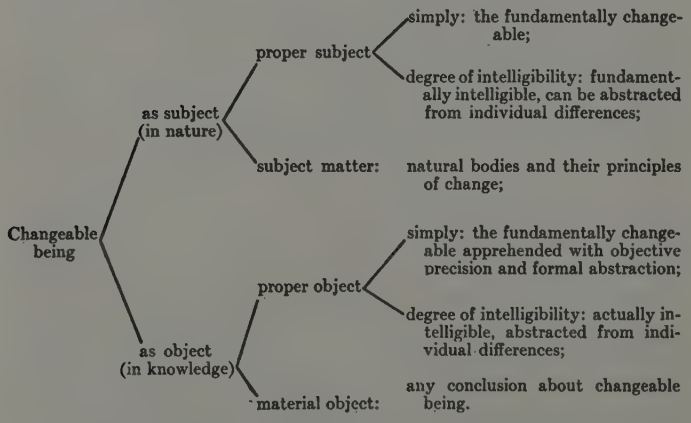
Philosophy of nature may be compared to the trunk of a tall

and spreading tree. This trunk springs from roots which are the basic concepts and principles of human thought. It is nourished by the sap of experience of natural things, and grows strong by the exercise of reason upon the data of experience. From the trunk proceed branches which divide and subdivide. These are the conclusions of the science. An attractive foliage covers the branches. This is natural history, or descriptive definition of natural things.

The following outline is presented for the sake of clarity.


Philosophy of nature
considered subjectively, or as a being, is a speculative science which is a habit of the mind or its act;
considered objectively or intentionally is an order or principle of conclusions concerning changeable being that is intelligible through its principles of change.

Changeable being that exists or can exist in nature is called the subject of the science. Changeable being that is known is called the object of the science.


Changeable being
as subject (in nature)
proper subject
simply: the fundamentally changeable;
degree of intelligibility: fundamentally intelligible, can be abstracted from individual differences;
subject matter: natural bodies and their principles of change;
as object (in knowledge)
proper object
simply: the fundamentally changeable apprehended with objective precision and formal abstraction;
degree of intelligibility: actually intelligible, abstracted from individual differences;
material object: any conclusion about changeable being.

Point of view: the power or act of the mind to abstract from individual differences and understand changeable being through its principles of change.

VIII. Whether Method is Required to Attain Philosophy of Nature?

Difficulties

It seems that method is not required in order to attain philosophy of nature, for the following reasons.

1. Method is not required in order to understand that which is immediately evident to us. Changeable being is immediately evident to us. Therefore method is not required in order to understand it.

2. Method is required only when there is need for proceeding in one way rather than another. There does not appear to be any reason for proceeding in one way in order to attain philosophy of nature, because many natural things are evident to us, and we can begin to study any of them we choose. Hence method is not required in order to attain philosophy of nature.

Solution

By the method of philosophy of nature we understand the correct and orderly way of proceeding to attain the speculative science of changeable being. Method is required in order to perform any complex task, such as making shoes or building a house. It is a complex task to attain philosophy of nature, as appears from the fact that we cannot perfectly understand changeable being by one act of the mind. Hence method is required in order to attain philosophy of nature.

The method which is required in order to accomplish an enterprise is that order and manner of proceeding by which it can conveniently be brought to completion. For example, we can build a house if we know what it is that we desire to build, not only in general but also in particular, if we have the materials and the tools that we need, and if we begin by laying the foundation, and then proceed to erect the framework that will support the walls and roof. Philosophy of nature can be attained in a way that is proportionally similar to this.

The student of nature desires to understand the principles

and reasons of changeable being as well as he can. Changeable being is evident to us through its sensory appearance, and is intelligible through its principles of change, which can be disclosed with the aid of the first principles of reasoning. Hence in endeavoring to understand changeable being we presuppose the data of sensory experience, both that of ordinary experience and that obtained by special experiments and with the aid of special instruments, such as the spectroscope or the barometer, insofar as such data are needed and available to perfect our understanding. We also presuppose that the first principles of reasoning are true with regard to changeable being; for instance, that it is not not-being; that the whole is greater than its part; that things have sufficient reason for being what and as they are; that effects have causes which are sufficient to produce them; that as a thing appears and acts sensibly, so it is: something which is fundamentally capable of appearing and acting in that way; and that as a thing is, so it is apt to act. In manifesting the truths of philosophy of nature, we employ various logical instruments, that is, various definitions, divisions, and demonstrations, in order to show what the principles and reasons of changeable being are.

We first investigate that which is fundamental in changeable being, that is, its radical or substantial principles, because the fundamentally changeable is what primarily is or exists in nature, is intelligible through its principles of change, and is the subject in which sensory properties are found. The proper accidents of changeable being, such as motion and quantity, are modifications of that which is fundamentally changeable, and are intelligible only in relation to it and to its principles. We first consider changeable being in general, because the basic concept of changeable being does not express the various numerical, generic and specific degrees, and because we cannot understand what any particular kind of changeable being is until after we know what changeable being is in general. Our next step is to investigate the general properties of changeable being, in order to complete our general knowledge of

it; and then we proceed to consider changeable being more comprehensively.

We investigate changeable being more in particular according to the different kinds of sensible change that it undergoes, because changeable being is manifested to us by sensible change. It appears that there are three kinds of sensible change, namely, local motion or change of place, alteration or change of the sensory qualities such as color or odor, and growth or change of quantity, which is found in living bodies. Local motion is more evident to us and more universal in nature than alteration, and alteration is more evident and more universal than growth. Hence we proceed to investigate changeable being first as subject to local motion, then as subject to alteration, and then as subject to growth. In each juncture we consider first that which is fundamental to an understanding of what is changeable in these special ways. We proceed from the more general aspects to the less general or specific aspects, and we investigate the fundamental or substantial essence, and its properties and proper accidents, and the correlations found in nature. When there are many special or specific degrees of changeable being to be investigated, as there are when we inquire into changeable being as it is found in the elementary bodies and in their compounds and in organisms whether plant or animal, we consider the simpler species first, because the simpler ones are easier for us to understand, and the more complex are better understood through our knowledge of the simpler.

Reply to Difficulties

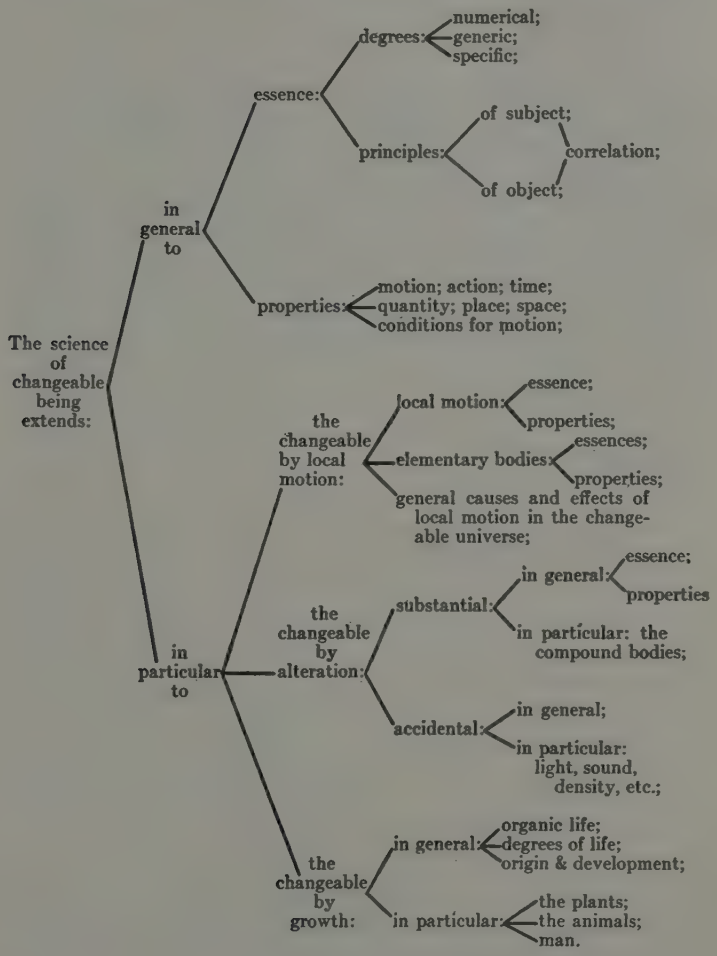
1. A special method is not required in order to know in an ordinary way that which is immediately evident to us. But ordinary experience and thought are not sufficient for determining in a scientific way the truths of philosophy of nature, particularly in regard to the things which are difficult to discover, such as the elementary bodies, or difficult to understand, such as the nature of the soul. It is an arduous task to obtain more extensive and more accurate experimental data, and to

reason correctly from the data. Hence the method of philosophy of nature includes not only the general logical method, but also a special logical method, together with special techniques which are required in order to obtain special data; just as the method of building a particular type of house includes special methods both of building and of preparing the materials out of which the house is to be built.

2. Many sensory aspects of changeable being are immediately evident to us. Our ordinary knowledge contains some important truths concerning natural things, and it is not difficult to increase our knowledge in an ordinary way. But this kind of knowledge is not perfect or perfectly scientific. It is notably deficient in regard to our understanding of the fundamental principles of natural things, and in regard to an orderly comprehension of their kinds and properties and their correlations. Moreover, there are many doubts and difficulties concerning these things which cannot be decided until after we understand the fundamental principles of changeable being and its general properties. Questions such as those which concern the nature of organic life, its origin and development, the relation of the soul to the body, the nature and origin and duration of the human soul, and the nature of our knowledge, cannot be settled in a sure and orderly way without reasoning from a fundamental understanding of changeable being. It is not immediately evident to us in a scientific way that changeable being has a multitude of numerical, generic, and specific degrees. Hence in order to perfect our knowledge of changeable being, we must consider it first in general.

It seems natural for us to understand things first in general and then more in particular. When we see a distant object we know that it is a body before we know that it is a man, and we know that it is a man before we recognize the individual. Moreover, it is convenient in manifesting the truths of a science to investigate its subject first in general and then more in particular, because if we already understand its general aspects these need not be considered again when we are inquiring concerning a special aspect or degree. For example, if we

Outline of some of the chief parts of philosophy of nature



already know what changeable being is in general, and as elementary and compound and organic and animal, there is no need to consider these aspects again when we are investigating it as intellective or rational. In this way we can begin our study of nature with a concept that expresses changeable being as actually intelligible, apprehended in a degree that is evident to us, and that is least comprehensive and most universal; and we can pass orderly through a multitude of concepts which express changeable being according to different formalities and degrees that are more comprehensive and less universal, together with concepts of their properties, and of their proper accidents, and of the correlations in nature. With the help of a competent teacher, philosophy of nature as a special habit of mind can be acquired within a moderate period of time. To master the details and discover new truths about nature is the vocation of specialists.

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ANOTHER APPROACH TO THE PROBLEM OF MEANING

THERE are at least two ways to approach the problem of meaning. One approach lies through an analysis of the modern writers on the problem; it is the one we chose to follow in a previous article.* It is not the better approach, but is imposed upon anyone who wishes to communicate with the moderns. The essential condition of modern communication is first to relapse exclusively into dialectic (not necessarily polemical) by way of attempting as far as possible to come to terms with anybody who has anything to offer on the matter. This need not be purely negative; it may also be the occasion for understanding better the general subject concerned. In this case of the current problem of meaning, the attempt at initial communication has had to be largely negative; this, however, is not the primary aim, for through it much can be learned, not so much of the particular problem discussed as of the current status of philosophy, particularly in its relation to experimental science. The issues which may subsequently rise from this must go beyond the dimension of what has been called the " problem of meaning," and hence cannot be resolved even in the present scope. But much can be suggested by way of anticipating the eventual issue—the modern problem of knowledge, and in particular the distinction of philosophy and experimental science. It is only in that dimension that the real difficulties here will be fully faced.

The second way of approaching again what has been covered is necessary for several reasons. First, it is the way the problem might better have been approached had not the problem of communication required consideration (and because of the current statement of the problem, this other way is stated in

* " The Problem of Meaning," The Thomist, Vol. VI, No. 2 (July, 1943), pp. 180 ff.

terms of it). Second the benefit of an exact terminology, which can dispense with such an ambiguous word as "meaning," permits seeing more clearly the general confusion which has been exhibited. What is involved in the previous article, then, can be translated into this more careful terminology. Third, it emphasizes the benefit of taking account of what has been already worked out in the past and can be employed to help here. Consequently, this second approach shows, secondarily, that the tradition of thought, available to everyone, can be of assistance in facing what may be considered problems now as well as what really are problems at present. This exacts docility on the part of the philosophically interested (as it should have exacted of everyone since the Greeks), but a docility which would make possible real "daring" and advance. It is regrettable that much of current writing is proud in its ignorance.

What follows, therefore, in this present article, is nothing more than a brief exposition of a couple of points in John of St. Thomas' *Cursus Philosophicus*. I employ him here simply because I owe to him (as well as what he learned from others) the perception of several distinctions which happen to be crucial in connection with the current problem of meaning. He states in a few words what endless pages of indiscriminate writing at the present time have failed to cover. This is not an attempt to enlarge any credit due John of St. Thomas, which is, as should be evident, completely unimportant; it is only gratification at finding something so helpful and *to the point*. Hence, the work of John of St. Thomas is employed as an aid and as a teacher for what it is worth, which was his intention in writing his *Cursus Philosophicus*.[1]

[1] Perhaps this explanation of why John of St. Thomas is employed is unnecessary. But so often the use of an "authority" is misunderstood, as there is a popular notion that any use of authority is uncritical and unoriginal. It is, fortunately, unoriginal if by "original" is meant one who has learned only from himself. It is not uncritical, since if there is any authority in a particular philosopher, this can be discerned to the extent that he has contributed something worth while. I should be simply dishonest if I did not acknowledge my debt to John of St. Thomas in this matter. I use him directly as a matter of economy.

Now, the one common point of agreement in all the current writers on the problem of meaning is the assumption that linguistic expression can be meaningless. The problem then centers on when linguistic expression becomes meaningful or how to put meaning into any linguistic expression which may be considered. The solution to this problem was supposed to be given in the principle of verification, namely that in some way the verification of a linguistic expression would give it its meaning. The further issue then was what way this some way would be. The various answers given to this soon suggested that something was wrong, that something was confused. This in turn would lead to the question: Why suppose that verification gives meaning? Is there not some distinction which has been missed in thus associating verification and meaning?

It is in terms of such questions that the following distinction made by John of St. Thomas assumes importance; perhaps it was made so carefully by him because he was facing a similar confusion in his time. The distinction occurs in connection with explaining "suppositio."[2]

The distinction of John of St. Thomas is as follows:

Suppositio is defined as the "taking of a term for something concerning which it is verified." Many recent authors do not admit this definition, thinking that *suppositio* is only the taking of a name for the thing which it signifies, nor do they distinguish *suppositio* from signification or the exercising of signification whereby a word is substituted in signifying in place of a thing. Whence that old and accepted principle, that some propositions have a subject which does not "suppose" and hence if such propositions are affirmative they are false, is rejected by them, because any name, whether inside or outside a proposition, "supposes" by the very fact that it is substituted for something according to the intellect.[3]

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[2] It is perhaps not so curious that this "hoary doctrine" of *suppositio* is one of the traditional contributions to logic especially dropped by modern logicians. Urban (*Language and Reality*) refers to it and notes its importance, but he fails to make any use of it. Even H. W. B. Joseph's *An Introduction to Logic* (Oxford, 1906), generally assumed to be an exposition of traditional logic, reduces *suppositio* to a footnote which begins: "The doctrine of *suppositio*, as of divers other 'properties of terms,' has happily fallen into oblivion . . ." (p. 14).

[3] "Suppositio definitur, quod est 'acceptio termini pro aliquo, de quo verificatur.'

Thus John of St. Thomas, in defining *suppositio*,[4] is insisting that terms or words have *suppositio* only when they are in a proposition and hence that *suppositio* is a property only of propositional terms or words, not of terms or words simply.

This understanding of *suppositio*, however, was strongly contested in his time, and some writers insisted that *suppositio* was merely the employment of any name to signify the understanding of a thing. The consequence is, as John of St. Thomas points out, a failure to distinguish *suppositio* from signification and the further consequence of assuming that any name must have *suppositio* whether in a proposition or not. Note here, for the moment, the ultimate consequence which could be drawn from such a position: that if any name must have *suppositio*, and especially if *suppositio* is confused with signification, then it is an easy step to assume that a name has meaning only as it is in the context of a proposition, since it is only in the context of a proposition that there can be *suppositio* (*i. e.*, standing as the logical subject or the logical predicate); and finally, how easy the step would be to assume also that every name must be verified, since *suppositio* requires verification. It would be interesting to know whether the writers John of St. Thomas had in mind took these consequences; if so, the problem of meaning (or more likely, the problem of signification or *suppositio*) was being argued then.

John of St. Thomas also distinguishes two senses of "substitution" which are useful here:

Multi ex recentioribus hanc definitionem non admittunt existimantes, quod suppositio solum est acceptio nominis pro re, quam significat, nec distinguunt suppositionem a significatione seu exercitio significationis, qua vox substituitur in significando loco rei. Unde illud antiquum et acceptatum principium, quod aliquae propositiones sunt subiecto non supponente, et ideo, si sint affirmativae, falsae sunt, ab ipsis reicitur, quia omne nomen, sive intra sive extra propositionem, supponit, hoc ipso quod substituitur pro aliquo apud intellectum." *Cursus Philosophicus*, Vol. I, p. 29[a]10. (All pagination is from the Reiser edition.)

[4] There is no exact English equivalent for *suppositio*. "Supposition" fails to carry the precision, and "supposes" is hopelessly inadequate. As John of St. Thomas' definition indicates, it is a certain kind of "standing for" within the proposition.

In one sense there is representative substitution whereby words convey to us the things signified; and this is not *suppositio*, but signification. In another sense there is a sort of applicative substitution whereby after the intellect takes the representation and signification of a word, it applies this name in various ways in propositions, so that it stands for that to which someone wishes to apply it. . . .[5]

As the text continues on to say, a word may be substituted in two ways, either to represent simply our understanding of things, or a *further* substitution of this representation, namely when it is applied in a certain way in propositions. Thus in "man is white," not only does "man" represent human nature to me but I also substitute it again to stand for the subject of that particular proposition. This further substitution requires verification, *i. e.*, whether its meaning permits it to be used in such an enunciation. If, for example, the signification of this word "man" could not be verified in this further substitution or use, then it would *not* be meaningless (or without signification) but would be without *suppositio* because of its signification.

In the light of this distinction (which is simply that between signification and *suppositio*, or between the two ways in which we may substitute words) the confusion which is in the current writings may be seen more clearly and stated in more precise terminology.

It is clear that the modern writers have confused representative substitution and applicative substitution of words or

[5] ". . . Uno modo substitutio repraesentativa, qua ipsae voces nobis ingerunt res significatas; et haec non est suppositio, sed significatio. Alio modo est substitutio quasi applicativa, qua postquam intellectus accepit repraesentationem et significationem vocis, applicat diversimode in propositionibus ipsum nomen, ut stet pro eo, cui vult aliquid applicare; sicut cum dico: 'Homo est albus,' ly homo non solum mihi repraesentat naturam humanam, sed etiam substituo illud pro eo, cui applicanda est albedo per illam copulam 'est.' Unde considerat intellectus, an respectu talis copulae detur vere et proprie subiectum, quod sit homo, et si datur, vere substituit tale subiectum in propositione; si autem non invenitur, substitutio est nulla, sicut si dicerem: 'Antichristus fuit bonus,' 'Adam est albus,' non substituo, nec supponunt illa subiecta, quia respectu illius copulae 'fuit' non datur nec applicatur 'Antichristus,' et respectu illius copulae 'est' non datur 'Adam,' et sic vocantur propositiones de subiecto non supponente." (*Ibid.*, p. 29^{b}16 sq.)

names. Representative substitution is the substitution whereby we impose names to stand for our conceptions of things. Applicative substitution is a further substitution of these names: the names (already meaningful) are applied to form a sentence or a proposition. It is here that verification comes in since the names have to be verified in relation to each other, or verified to stand for the parts of the whole which they are to make up. These writers do not recognize representative substitution, which is where the meaning of names originates; they only recognize, in a way, applicative substitution—names as parts of a larger whole—and it is here that some of them, at least, seem to think meaning is first obtained.

There is, however, another and greater confusion involved. It is the failure to distinguish the verification of the proposition itself from the verification of a word in the proposition; and to distinguish both of these from signification. The verification of a proposition, if it can be obtained, gives the proposition its truth. For these writers, the verification of a proposition gives it its *meaning*. John of St. Thomas insists upon the distinction of the verification of a word in the proposition, and the verification of the proposition itself. In commenting upon the definition of *suppositio*—" the taking of a term for something concerning which it is verified "—he says of the " for something concerning which it is verified " that it must be understood " for which this taking or substitution of the term is verified, not of which the proposition is verified. For the truth or verification of the proposition is not needed for *suppositio*, inasmuch as there is *suppositio* also in the false proposition. . . . "[6] The failure to distinguish these two verifications results in the confusion that is apparent in maintaining that only the proposition has sense, that only in the context of a proposition has a name a meaning. The statement really should be: Only the proposition has truth; only in the context of a proposition has a name a *suppositio*.

[6] " . . . pro quo verificatur illa acceptio termini seu substitutio, non de quo verificatur propositio. Non enim requiritur ad suppositionem veritas seu verificatio propositionis, siquidem etiam in propositione falsa datur suppositio. . . ." (*Ibid.*, p. 30a10 sq.)

This also indicates why these writers find it so easy to suppose that there can be a meaningless sentence or a meaningless proposition. For by supposing that meaning is attained by verification, they would further suppose that where there is no verification there is no meaning. But in the case where there is no verification of the proposition, the proposition is false; and there is no verification because the meaning of the proposition will not permit a verification. Hence we cannot verify precisely because the proposition has meaning. This may also explain the attempt to identify " ultimately " truth and meaning. This position would follow insofar as verification of the proposition is retained in some way as the principle of meaning. Similarly in the case of the verification of a name within the proposition. If the name cannot be verified in the proposition, the name will have no *suppositio* (just as, grammatically, a word might not be a " part of speech " although remaining fully a word as a meaningful element, which could happen in badly constructed sentences—hence not really sentences—where words are present but are not ordered as " parts of speech "). And, again, the name will not be verified in its *suppositio* because of the meaning or signification of the name itself. As John of St. Thomas points out:

> And thus *suppositio* is acknowledged to be distinguished from signification, since the signification of a term is permanent and one while the *suppositio* can be varied with the signification remaining the same, because the former depends upon imposition, which does not change, the latter upon the application and use of the intellect, by which it applies and uses a term.[7]

It is also important to note that it is in connection with *suppositio* that we speak of a verification " according to sense " or " according to intellect." Thus in " ' Man ' is a word " I verify " man " (by material *suppositio*) by pointing to the word " man " and thus show that this sensible thing is to stand

[7] " Et constat distingui suppositionem a significatione, cum significatio termini sit permanens et una, suppositio autem variari possit eadem significatione manente, quia illa ab impositione, quae non mutatur, dependet, haec ab applicatione et usu intellectus, quo applicat et utitur aliquo termino." (*Ibid.*, p. 166[a]47.)

for a word. It is only here that pointing might be of assistance, although not absolutely necessary; but the pointing would not be for the purpose of obtaining meaning, but for illustrating meaning (*i. e.*, showing its use or application). This verification *ad sensum*, however, is not the only nor even the primary way of exhibiting verification in *suppositio*. It does not have to be made *ad sensum*, especially when a verification *ad intellectum* suffices.[8]

The point of interest here is that this demonstration *ad sensum* is an approximation of what is called empirical verification, while the demonstration *ad intellectum* is an approximation of the attempts of others to verify in ways other than merely empirical, for example, verification by " authentication." The writers here, of course, speak in connection with the verification of the proposition itself, rather than with the verification of a name within the proposition, but the point holds as far as meaning is concerned. In the verification of the proposition, the question is whether truth, rather than *suppositio*, is given *ad sensum* or *ad intellectum*. Here some have wished to narrow verification to *ad sensum* exclusively.

There is, perhaps, a final point which will serve to put the full force of the distinction of signification and *suppositio* in a clearer and fuller dimension. This concerns a more basic distinction, upon which the distinction of signification and *suppositio* depends. This is the distinction between the first and second operations of the mind or between simple apprehension and judgment. Very likely, none of these writers would admit simple apprehension as distinct from judgment, and yet perhaps it is just because of this that we have had the principle of verification proposed so consistently as the principle of meaning. It is in the light of that distinction that we can see fully the corresponding distinctions of signification, *suppositio*, and verification, and what they entail in the present consideration. For this simply takes account of the way in which we know, so that this distinction of simple apprehension and judg-

[8] " Haec autem demonstratio, quando dico: ' Hoc est ' etc., non requiritur quod fiat ad sensum, sed sufficit quod ad intellectum demonstretur, quia praeterita et futura non demonstrantur ad sensum. . . ." (*Ibid.*, p. 30[a]44.)

ment itself is understood in terms of the most fundamental distinction of all, the distinction of act and potency " which divides all being." In this way we can understand that it is our potential mode of knowing which requires three operations to arrive completely in act:

> . . . this arises from our imperfection of intellect, because we proceed from the imperfect to the perfect and from potency to act. . . .[9]

The foregoing treatment of signification, *suppositio*, and verification, while making clear the confusion that has been involved, does not *ipso facto* point the solution to the problem of meaning. It is mainly negative in that it shows what is not the problem of meaning. It also should show the futility of losing the problem in the ambiguous English word " meaning." In fact, the problem, in more accurate terminology, concerns signification, as is evident from the way in which John of St. Thomas proceeds. It is, then, perhaps not so curious that John of St. Thomas treats the matter of signification in such detail in the first volume of the *Cursus Philosophicus*. Here again, a brief consideration of his work—this time on signification itself—will prove helpful in understanding the dimension in which the " problem of meaning " should be cast.

John of St. Thomas defines the sign as follows: " that which represents to the knowing power something other than itself." [10] In order to understand this definition fully, John of St. Thomas points out, we should have to consider knowing, and the four causes of knowing.[11] And here we can see at once what will

[9] " . . . ex imperfectione nostri intellectus id provenire, quia procedimus de imperfecto ad perfectum et de potentia ad actum. . . ." (*Ibid.*, Vol. III, p. 367a17 sq.) Cf. the commentary of St. Thomas on this in *Post. Anal.*, Bk. I, lect. 1, n. 4.

[10] " Id, quod potentiae cognoscitivae aliquid aliud a se repraesentat." (*Ibid.*, Vol. I, p. 9a19.)

[11] " Quae definitio ut melius innotescat, oportet considerare, quod est quadruplex causa cognitionis, scilicet efficiens, obiectiva, formalis et instrumentalis. Efficiens est ipsa potentia, quae elicit cognitionem, sicut oculus, auditus, intellectus. Obiectum est res, quae movet vel ad quam tendit cognitio, ut cum video lapidem vel hominem. Formalis est ipsa notitia, qua redditur potentia cognoscens, ut visio ipsa lapidis vel

have to be ultimately the real problem. It will be the problem of knowledge itself, for only in terms of knowing can representing and signifying, which are contained within knowing, be fully understood. This is the significance of the fundamental statement of John of St. Thomas: "Igitur facere cognoscere latius patet quam repraesentare, et repraesentare quam significare." [12] Knowing is more extensive than representing, and representing is more extensive than signifying.

It is in this dimension that the analysis of signification has to be understood. For *facere cognoscere* embraces everything pertaining to knowing—the efficient, objective, formal, and instrumental causes. *Repraesentare*—which concerns everything by which something is made present to the knowing power [13]—embraces three of the causes, the objective, formal, and instrumental. *Significare* concerns only the formal and instrumental causes.

The sign is defined as a kind of representing. By means of representation, the medium of joining the object and the knowing power is explained. The medium is both the representation whereby the physical object is represented in the impressed species, as in the principle of knowing, and also the representation whereby the intentional object is represented in the expressed species, as in the term of knowing.[14]

Thus all signifying is representing, but not the converse. What distinguishes signification from representation is that signification is that kind of representation which "represents other than itself," whereas we can speak of an object, or that which is known, as simply representing itself in being known. The distinguishing characteristic of a sign is that there is a real difference between it and what it signifies. The sign must

hominis. Instrumentalis est medium, per quod obiectum repraesentatur potentiae, sicut imago exterior Caesaris repraesentat Caesarem." (*Ibid.*, p. 9[a]22 sq.)

[12] *Ibid.*, p. 9[b]7.

[13] "*Repraesentare* dicitur de omni eo, quo aliquid fit praesens potentiae. . . ." (*Ibid.*, p. 9[b]30.)

[14] The treatment of the problem of *repraesentare* is considered by John of St. Thomas in Vol. III, Q. 3, A. 3, p. 101 sq. In Question 6 of the same volume, articles 2 and 3 treat in great detail the necessity of the intentional species. The role of intentional species in knowledge deserves re-statement and re-emphasis in modern psychology.

always be ordered to the signified; the sign is always dependent upon the signified. The importance of this can be seen in connection with words, which are kinds of signs. Words cannot be understood except in terms of their signification. This indicates the futility of a principle of verification since it seeks to obtain a signification ("meaning") which must already be present in order to have a verification.

The point here is not only the former one, that representation is more extensive than signifying, but that signification adds to representation the relation of *dependence* to what is signified. By thus distinguishing representation and signification, we shall not confuse the two and their respective problems, nor shall we lock ourselves forever in a void of signs supposedly signifying only themselves. It is the nature of a sign to point to something else (even though this may still be another sign), to refer to something other than itself, and hence a sign can never be isolated apart from its relation of dependence to what it signifies. To ask questions concerning what it is that is known, or how an object is made present to the knowing power, is to go beyond the dimension of signification. This does not eliminate difficulties, but distinguishes where difficulties belong. Signification will not settle the problem of knowledge, although because signifying is contained within knowing much can be determined about knowing through signifying. For example, the mode of signifying will indicate the mode of knowing; the language of the poet differs from the language of the scientist.

In the dimension of signification, then, the elements are the sign, the signified, and the knowing power, each distinct from the other; the problem is their relation to each other, and, in terms of this, the division of signs. Thus the question is whether a sign is related only to the signified, or only to the knowing power, or to both.[15]

[15] Cf. *Cursus Philosophicus* Vol. I, Q. 21, A. 3, p. 663 sq. I must make clear my intention in proceeding in this way in the analysis of signification. This intention is to expose briefly the work on this matter of John of St. Thomas who is, in this respect, a model "semanticist." Economy of space dictates condensed writing

The definition of the sign involves both the knowing power and the signified (the " aliquid aliud a se repraesentat "). This implies that the sign must be related to both. To ignore the part the knowing power plays in signification would be to identify words, for example, with the things they signify—reifying language—which some contemporary semanticists have also protested against. On the other hand, to ignore the signified would be to fail to distinguish the dependence the sign must have on what it signifies.

Thus the sign must be related to both the knowing power and the signified. With customary diligence, John of St. Thomas asks whether there is only one relation, involving the knowing power and the signified as unequal terms within this same relation, or whether the sign is related distinctly and separately to each. The question, abstract as it might seem, assumes great importance in the analysis of signs.

There certainly seems to be a sense in which two relations could be distinguished in the sign, for there appears to be a difference whether the sign is related to the signified or to the knowing power. The relation of the sign to the signified has already been mentioned in distinguishing signification from representation, which was obtained by the *aliud a se*, the relation of dependence of the sign to something other than itself. Hence the sign would be related to the signified as subordinate to it. The sign depends upon the signified as the *measured* depends upon a *measure*, a critical point for semantics. The relation of the sign to the knowing power, however, seems to be different. Here the relation seems to be one of dominance, rather than dependence: the sign [16] represents *to* the knowing

and a reliance upon philosophical terminology, which is, of course, only common language made precise. What would be more desirable here is a dialectical examination of John of St. Thomas' work in relation to contemporary semantics, but that would exceed the present limits. However, at the conclusion of this short exposition of John of St. Thomas' semantics, a brief comparison will be made with a central point in Ogden and Richards, who are probably the most influential contemporary semanticists.

[16] As will be evident later in the divisions of signs, we are referring here to formal signs as distinct from instrumental signs.

power. The knowing power must depend upon the sign for the representation of the object. However, in specifying this, John of St. Thomas insists that more is involved than the notion of sign. In insisting upon this relation of dominance, it is the object that must be ultimately considered, and it is only insofar as the sign takes the place of the object in representing it that it can be said to exercise a relation of dominance over the knowing power.[17] So to the extent that the sign substitutes for the object (the signified) it does dominate the knowing power, for it is the *means* by which the knowing power is specified. This may seem like a fine distinction, but it is John of St. Thomas' way of safeguarding the objectivity of knowing and signifying: the object is always the "dictator"; so is the sign insofar as it substitutes in representing it to the knowing power. But insofar as it signifies the object, the sign, too, is "dictated to." This is sheer objectivity, *i. e.*, the definition of knowing. In this way, then, there might be two relations in the sign: its subordinating relation to the signified, and its dominating relation to the knowing power to the extent of presenting the object to it.[18]

But there is also a sense, and a more proper one, in which there is only one relation involved in signification. This is by considering the sign, not as relating to two equal terms—for this would give two distinct relations—but as relating to one directly and the other indirectly. Here the sign itself is considered more precisely, and if representation and signification are carefully distinguished (and it was to conserve this that

[17] "... quod potentia et signatum ut termini directe attacti postulent duplicem relationem, ex eo constat, quia potentia non respicitur directe nisi a suo obiecto vel movente vel terminante; potentia enim directe respicit obiectum ut obiectum, signum autem non dicit directe rationem obiecti, sed substituentis pro obiecto et medii inter signatum et potentiam, ergo directe respicit signatum, pro quo substituit, in quantum signum est. Ut ergo directe respicit potentiam, indiget sumi in ratione obiecti et non in ratione signi. ..." (*Ibid.*, p. 664^{b}49-665^{a}14.)

[18] "Si potentia et signatum considerentur ut termini directe attacti per relationem, necessario exigunt duplicem relationem in signo, sed hoc modo signum respicit potentiam directe ut obiectum, non formaliter ut signum." (*Ibid.*, p 664^{a}41.)

John of St. Thomas first considered a double relation in the sign), then signification properly involves a single relation which embraces both the knowing power and the signified, but not equally nor in the same way.[19] And it is in this way that it can be said that the function of the sign is to represent the signified to the knowing power, understanding by this that the sign attains the signified directly and the knowing power indirectly. The signified is that which the sign represents; the knowing power is that to which the sign represents the signified. This emphasizes the essential role of the sign, the role of substitution for the signified, and this touches the very heart of the problem of signification. For the difficulty underlying semantics is that we cannot get to things themselves immediately, and it is in virtue of this that we need signs. The thing or object has to be represented to the knowing power, and signification is the means by which this representation occurs. And it is in terms of this relation of the sign to the knowing power and to the signified that the distinction of kinds of signs can be made and understood.[20]

[19] "Si vero consideretur potentia ut terminus in obliquo attactus, sic unica relatione signi attingitur signatum et potentia, et haec est propria et formalis ratio signi." (*Ibid.*, p. 664[a]47.)

[20] "Hinc nascitur duplex divisio signi. Nam qua parte signum ordinatur ad potentiam, dividitur in signum formale et instrumentale; quatenus vero ordinatur ad signatum, dividitur penes causam ordinantem illud in naturale et ad placitum et ex consuetudine" (p. 9[b]43-10[a]4).

The foregoing treatment of how the sign is related to the knowing power and to the signified is most important, even though given here somewhat summarily. It considers the sign *secundum se*, and John of St. Thomas' treatment of this is the most elaborate in the whole tradition. He recognizes the need of distinguishing carefully the role the sign plays in knowing, in particular the formal sign, which is ignored in contemporary semantics. He emphasizes the importance of the sign for logic, since all the instruments of logic are defined in terms of the sign: "Quia ergo tam terminus quam oratio et propositio et reliqua instrumenta logicalia per significationem definiuntur, eo quod intellectus cognoscit per conceptus significativos et loquitur per voces significativas, et in universum omnia instrumenta, quibus ad cognoscendum et loquendum utimur, signa sunt, ideo ut logicus exacte cognoscat instrumenta sua, scilicet terminos et orationes, oportet, quod etiam cognoscat, quid sit signum" (p. 9[a]6-18).

From his very detailed examination of the sign (cf. the questions treated from pages 646 to 728) I have chosen to present in condensed form his question on the

In the relation of the sign to the signified, the more familiar division of signs occurs. That is, this division of signs is the one commonly recognized, probably because the relation of the sign to the signified is more obvious. This is the division of signs into natural and artificial. The natural sign exhibits some natural connection between the sign and the signified, as in the common examples of smoke signifying fire or clouds signifying rain. Such a sign is called natural also because it signifies the same to everybody.

The artificial sign is a sign that is in some way devised or imposed voluntarily by man. These are the most recognizable signs of all since they are deliberately devised and made to be signs. They embrace all spoken and written language, symbolism, ritual, codes, gestures, etc. It is here, however, that John of St. Thomas insists upon a further distinction within artificial signs. There is a further difference in the way these signs are arbitrarily imposed by man. Some artificial signs have a certain measure of binding authority in their use; others do not. The first kind John of St. Thomas calls *ad placitum*; the second, *ex consuetudine*.

This further distinction of artificial signs has a certain amount of practical importance. The *ad placitum* signs are those which have a definite political or social aspect, and to that extent require the sanction of public authority behind them. This is the case with words, since language is a social affair. Language cannot be treated *wholly* arbitrarily; *ad placitum* is not *ad libitum*. This distinction is recognized, for example, in suits of slander or libel where words are granted to have a social and not merely private significance, and hence involve responsibility.[21] Likewise, the condition of communica-

relation of the sign to the knowing power and the signified, and his discussion of the divisions of signs because of their pertinence in exhibiting the extent really involved in the "problem of meaning." The appreciation of this can best be seen in the comparison with Ogden and Richards, which follows below. The work of John of St. Thomas on signification deserves a much fuller exposition than is possible here.

[21] Another instance to show how words are regarded as primarily *ad placitum* is found in the way in which trademarks are acquired. Since language is social and

tion with language is the acceptance of public authority in the use of words. This justifies the existence of academies and dictionaries, which determine what socially accepted significations words are to have.

On the other hand, words still remain arbitrary signs—they are *ad placitum*, and not natural. This avoids supposing that there is a natural correctness about words, or that words signify naturally (hence, the same for all) just as smoke signifies fire. There is a sense, perhaps, in which it could be said that the word "*x*" should signify such and such (but the "should" here expresses only the social authority that is recognized in language). It could not be said that the word "*x*" must signify such and such in the sense that a natural sign must because of its natural connection with the signified. Words as words are essentially artificial or arbitrary in the sense of *ad placitum*, since they are products deliberately made to signify, and since what they signify they need not necessarily signify.[22]

The distinction of words as artificial rather than natural, and as *ad placitum* rather than *ex consuetudine* [23] has an important bearing on the problem of meaning. Contemporary writers usually admit the distinction between natural and artificial signs, but none make any further distinction within artificial signs. This may contribute, in part, to the problem of whether words are natural or conventional since if this means either

has public (not private) authority and use behind it, a trademark is adopted by indicating in some way that the words in question are being altered from their accepted social usage. It is a manner of altering language from public to private use. Ordinary common names thus become proper names. Frequently, odd spelling is employed to indicate the transition.

[22] The issue of whether words are natural or not is an old one. Plato in *Cratylus* seems to take the position that names have a natural correctness in their representation of things. Among the current writers, Mr. Urban also seems to hold that names are not mere *nomina*, not merely conventional (cf. The Thomist, Vol. VI, No. 2, p. 197, n. 37). On the distinction of what is natural and what is artificial in language, vd. St. Thomas, *De Interpretatione*, lect. 6, nn. 7-8.

[23] *Ex consuetudine* signs are signs with no public authority behind them, but merely custom and use. John of St. Thomas gives the example of napkins signifying a meal. The Christmas tree would be another example.

natural or *ex consuetudine*, there are difficulties with either. But if it is realized what it means to say that words are *ad placitum*, then it will also be realized how words of themselves cannot be expected to give their meaning, since there is that arbitrariness about words. Nor do words depend exclusively on the way any person happens to use them, since they are not as arbitrary as that; nor, finally, are they to be verified for their significance, since it is only in virtue of their significance that they come to be words.

The relation of the sign to the knowing power gives the division of formal and instrumental signs. This is a more difficult division of signs to see because of the intimate connection of signifying and knowing. For the same reason, it is a more important division relative to the "problem of meaning." Two initial points must be made here.

First, we must remember that by careful distinction John of St. Thomas has insisted there is only one complete relation involved in the sign, the signified, and the knowing power. Nevertheless, the knowing power and the signified are two terms in this relation, although not equally so. The signified is always the ultimate term of this single relation; the knowing power is the term "*in obliquo*." Although the relation thus remains unbroken, the sign can be related subordinately, within this comprehensive relation, to its two unequal terms (the sense of the double relation). In now considering the relation of the sign to the knowing power, we do not ignore the signified, but consider the sign as substituting in place of the signified or object. Hence, the sign is considered more "ut obiectum, non formaliter ut signum." [24] As will also be evident, this concerns the formal sign rather than the instrumental sign; not that the formal sign is not fully a sign, but rather that its essence as a formal sign consists in its being that intentional form which is a sign.[25]

Second, the division of signs into formal and instrumental is

[24] Vd. n. 18, *supra*.

[25] Vd. *Cur. Phil.*, I, Q. XXII, Article 1, p. 693 *sq.* on the difficulties regarding the formal sign as properly a sign, upon which the following chiefly relies.

neither more nor less extensive than the division of signs into natural and artificial. Since the relation of the sign, knowing power, and signified remains one, both divisions of signs include all signs, only under different aspects. For example, all formal signs are natural signs although not *vice versa*, and hence instrumental signs include both natural and artificial signs. The difference in the two divisions is a difference of emphasis. The division into formal and instrumental signs is the emphasis upon signs as interior and exterior to the knowing power. The division into natural and artificial is the emphasis upon the manner in which signs are connected with the signified. This diversity of emphasis serves to make clearer the role of signifying in knowing.

The distinction of the instrumental sign involves no difficulty. Because it is always exterior to the knowing power, it is something of a knowable object in itself, and hence is more obviously a sign. Examples given of signs are almost always instrumental signs; words, in this division, are instrumental signs, and the importance of recognizing words as instrumental signs will soon be apparent. The distinguishing characteristic of the instrumental sign, as is evident from its being exterior to the knowing power, is that it must itself be known as an object in order to know what it signifies. A word has to be known *as a word* to know what it signifies.

"Sed tota difficultas est circa signa formalia." The formal sign, being interior to the knowing power, is less familiar and less obvious. This very fact makes the grasping of the formal sign difficult. It is not easy to understand the distinction of a sign *within* the knowing power which at the same time is not the knowing power itself, nor the act of knowing. This very minute precision can be made more clear by starting with an instrumental sign, such as the word. Words are extrinsic means of signifying things understood. Words of themselves do not signify directly and immediately things, but only in virtue of knowing. Hence we depart from the ambiguity and void of instrumental signs to get at the knowing which is expressed through them. But the process of knowing is complex. John

of St. Thomas, following St. Thomas, distinguishes four elements in the process of knowing.[26] These elements are: 1) the thing which is understood (the object), 2) the intelligible species by which the intellect is aroused into act (the impressed species), 3) the act of understanding, and 4) the conception of the intellect (the concept, the expressed species), only analytically distinct from the act of understanding. All this is involved in order for the knowing process to occur in the mind, by which it is possible to signify extrinsically or instrumentally by words, for example.

In this way signification can be understood *within* the knowing power or intellect; the knowing power needs signification to *inform* it. In this distinction of the elements involved in the knowing process, the signification will be the concept, that term of the knowing process whereby the knowing power, fully in act, expresses the intentional likeness of the object. It is in this manner that the concept is the formal sign.[27] The concept cannot be an instrumental sign since the concept is not an object known in any way (except reflexively). It is a formal sign because it signifies by representing directly and immediately the object. In terms of the other division of signs, the concept is a natural sign because of its natural connection with the signified, being its intentional form and likeness.

The formal sign (of which the concept is the intellectual instance)[28] is thus a pure medium in signifying. This is its

[26] Vd. p. 712a24 *sq.* Cf. St. Thomas, *De Potentia*, Q. 8, Art. 1.

[27] In conformity with the above distinction of the four elements involved in the knowing process, John of St. Thomas proceeds to discuss which of them is the formal sign, and why only the concept is. In Q. XXII, then, Article 2 is "Utrum conceptus sit signum formale." Article 3: "Utrum species impressa sit signum formale." Article 4: "Utrum actus cognoscendi sit signum formale."

There is, perhaps, no reason to elaborate on the need of distinguishing these four elements in the knowing process, because of its importance in the whole traditional analysis of knowing. Again, however, it would be desirable to explore this distinction in a more dialectical manner for the purpose of communication since, as will be evident, it is a necessary and ignored part of current semantics.

[28] The other instance is the corresponding expressed species in sensitive knowing; vd. p. 704a42: "Etiam idolum seu species expressa sensibilis in potentiis interioribus est signum formale respectu talium potentiarum."

sharp distinction from the instrumental sign which, to some extent, is a *quod* and not a *quo*. Here again, John of St. Thomas follows St. Thomas in carefully distinguishing the various senses of a medium in knowing.[29] The formal sign is a medium *in quo*, as distinct from a medium *sub quo* or even medium *quo*. And it is a medium *in quo* not, of course, in the sense that a mirror is a medium in which one sees his image, which is still extrinsic to the knowing power and only a material likeness, but a medium *in which* the knowing power is intrinsically informed with the likeness of the object. There is, then, no mediate knowing of the formal sign, but an immediate *forming* of the knowing power itself. This is the sense of the medium *in quo* of the formal sign. "Habet enim rationem medii *in quo*, quia numquam se, sed aliud a se repraesentat. . . ." [30]

This, too, agrees with the original definition of a sign: "that which represents to the knowing power something other than itself." This definition applies equally to formal and instrumental signs, since both represent something other than themselves. The important point, however, is the difference, which is in mode of signifiying, and which must be emphasized once more. The instrumental sign represents something else mediately; it must be itself known as an object in order to signify. The formal sign represents something else immediately; it is known, not as an object, but formally as that in which the object is represented to the knowing power. Since, then, the formal sign is interior to the knowing power while the instrumental sign is extrinsic, the instrumental sign must thus be a consequence of and dependent upon the formal sign, except in the case of a purely natural instrumental sign, which the word is not.

In brief review, then, the work of John of St. Thomas on signification, as summarized here, has shown the following. The definition of the sign gives the elements of signification: the sign, the knowing power, and the signified. One comprehen-

[29] Cf. p. 693^{b}35 *sq.* [30] P. 696^{a}46.

sive relation is involved: the sign relates directly to the signified and represents it to the knowing power. In terms of this relation, divisions of signs are made. Natural and artificial signs arise from the connection of the sign with the signified. The further distinction of artificial signs into *ad placitum* and *ex consuetudine* is necessary, especially in understanding words as signs. Formal and instrumental signs arise from the connection of the sign with the knowing power. The formal sign (*e. g.*, the concept) is interior to the knowing power; the instrumental sign (*e. g.*, the word) is exterior. There is no difficulty in distinguishing the instrumental sign; the formal sign, because of its role within knowing, is difficult to grasp. Unlike the instrumental sign, the formal sign is a pure medium since it wholly signifies something other than itself, and is in no way a knowable object in itself. The crucial point, then, is the distinction of the formal sign from the instrumental sign. In other terms, this is the difference between a concept and a word, which shows the dependence words have upon concepts.

It is at this point that the analysis of John of St. Thomas can be compared with a current work on semantics. The purpose of this comparison is to show what there is in common in the two treatments as well as what is different and, as a result, to see where the original " problem of meaning " leads. For this comparison an important part of Ogden and Richards' *The Meaning of Meaning* has been chosen because of its recent influence and because here the problem is posed in terms of signification. Also, contrary to the foregoing writers with their principles of verification, Ogden and Richards at least recognize the relative unimportance of words as words, that they must already have significance, and hence that the problem then becomes the manner in which words signify.

Ogden and Richards approach the point in question as follows:

> By leaving out essential elements in the language situation we easily raise problems and difficulties which vanish when the whole transaction is considered in greater detail. Words, as every one now knows, " mean " nothing by themselves. . . . It is only when

a thinker makes use of them that they stand for anything, or, in one sense, have "meaning." They are instruments. . . . But for the analysis of the senses of "meaning" with which we are here chiefly concerned, it is desirable to begin with the relations of thoughts, words and things as they are found in cases of reflective speech uncomplicated by emotional, diplomatic, or other disturbances; and with regard to these, the indirectness of the relations between words and things is the feature which first deserves attention.

This may be simply illustrated by a diagram, in which the three factors involved whenever any statement is made, or understood, are placed at the corners of the triangle, the relations which hold between them being represented by the sides. The point just made can be restated by saying that in this respect the base of the triangle is quite different in composition from either of the other sides.

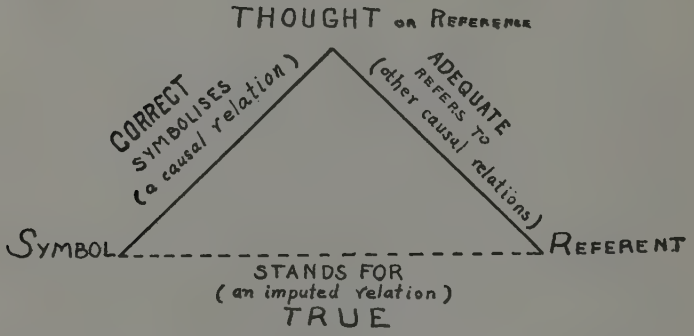

FIG. I.

Between a thought and a symbol causal relations hold. When we speak, the symbolism is caused partly by the reference we are making and partly by social and psychological factors—the purpose for which we are making the reference, the proposed effect of our symbols on other persons, and our own attitude. When we hear what is said, the symbols both cause us to perform an act of reference and to assume an attitude which will, according to circumstances, be more or less similar to the act and the attitude of the speaker.

Between the Thought and the Referent there is also a relation;

more or less direct (as when we think about or attend to a coloured surface we see), or indirect (as when we "think of" or "refer to" Napoleon), in which case there may be a very long chain of sign-situations intervening between the act and its referent: word—historian—contemporary record—eye-witness—referent (Napoleon).

Between the symbol and the referent there is no relevant relation other than the indirect one, which consists in its being used by someone to stand for a referent. Symbol and Referent, that is to say, are not connected directly (and when, for grammatical reasons, we imply such a relation, it will merely be an imputed, as opposed to a real, relation) but only indirectly round the two sides of the triangle.[31]

The point that appears to be insisted upon most in this triangular presentation of Ogden and Richards is that there is no direct relation between the "Symbol" and the "Referent." Loosely translated into the terminology of John of St. Thomas, this means that the instrumental sign has no direct or necessary connection with the object even though, for example, smoke itself is so related to fire, a point John of St. Thomas would likewise insist upon, although he takes it pretty much for granted. John of St. Thomas finds no difficulty with the instrumental sign; it likely seemed evident to him that since the instrumental sign is extrinsic to the knowing power no one would identify it with the object or referent. Ogden and Richards, however, make a great point of this indirect relation of symbol and referent, and seem to think that until recently it was universally misunderstood. It is not clear what or whom they intend by this. But the most likely instances now of such a misunderstanding would be the holders of the principle of verification who wish precisely, by verification, to establish a direct relation between words and objects. The point of agreement, then, between Ogden and Richards and John of St. Thomas is the role of the instrumental sign; the difference is that John of St. Thomas takes this as evident while Ogden and Richards make this the main point.

In connection with this same point, it is not clear in Ogden

[31] Ogden and Richards, *The Meaning of Meaning*. 5th edition. Harcourt, Brace and Company, New York, 1938. pp. 9-12.

and Richards the sense in which the imputed relation between the symbol and referent becomes "true." This may mean: 1) the sense in which a proposition expressed by certain symbols is verified as true; 2) the sense in which symbols stand for certain parts of an expressed proposition, as in *suppositio*; or 3) the sense in which symbols, such as words, are imputed to stand for (even though only indirectly) referents and are, consequently, "true" as merely signifying. The third sense would involve the same confusion exhibited in the principle of verification, *i.e.*, signification and verification. The second sense would confuse signification and *suppositio*. The first sense is the only one in which "true" could justifiably appear, but it is rather dubious that this is what they intend to impart.

Another point of agreement is the relation of "Symbol" to "Thought or Reference." Translated into the terminology of John of St. Thomas this would mean that the instrumental sign depends wholly upon the concept, which is the force of the *ad placitum*. The agreement here is in the arbitrariness of instrumental signs as means of signification, and that to get at the meaning of words, for example, is to go to the thought behind the words, or to get at the thought which is being expressed more or less arbitrarily in extrinsic signs.

Here, however, whatever agreement there is appears to cease. There may be more, but this cannot be determinded on the basis of what is expressed in *The Meaning of Meaning*. It is difficult, if not impossible, to determine the meaning of Ogden and Richards' explanation of the relation of "Thought or Reference" to "Referent" since it is given in very general and ambiguous expression, *e.g.*, "It is Thought (or, as we shall usually say, *reference*) which is directed and organized, and it is also Thought which is recorded and communicated." [32] Later on, attempts to explain the mental process by reaction to stimuli or even by a "purified" behaviorism depend upon the extent to which one is content with identifying "I am thinking of A" with "My thought is being caused by A," or

[32] *Ibid.*, p. 9 . . . *passim*.

identifying the mental process with reaction to match-strikings, bell-ringings, and other stimuli.[33]

It would seem that it is just here that the semantics of John of St. Thomas would be of service. The semantics of Ogden

[33] Cf. Chapter III. "Sign-Situations," which, in part, runs as follows:

"The effects upon the organism due to any sign, which may be any stimulus from without, or any process taking place within, depend upon the past history of the organism, both generally and in a more precise fashion. In a sense, no doubt, the whole past history is relevant: but there will be some among the past events in that history which more directly determine the nature of the present agitation than others. Thus when we strike a match, the movements we make and the sound of the scrape are present stimuli. But the excitation which results is different from what it would be had we never struck matches before. Past strikings have left, in our organization, engrams, residual traces, which help to determine what the mental process will be. For instance, this mental process is among other things an awareness that we are striking a *match*. Apart from the effects of similar previous situations we should have no such awareness. Suppose further that the awareness is accompanied by an expectation of a flame. This expectation again will be due to the effects of situations in which the striking of a match has been followed by a flame. The expectation is the excitation of part of an engram complex, which is called up by a stimulus (the scrape) similar to a part only of the original stimulus-situation.

". . . An engram is the residual trace of an adaptation made by the organism to a stimulus. The mental process due to the calling up of an engram is a similar adaptation: so far as it is cognitive, what it is adapted to is its referent, and is what the sign which excites it stands for or signifies.

"The term 'adapted,' though convenient, requires expansion if this account is to be made clear—and to this expansion the remainder of the present chapter is devoted. Returning to our instance, we will suppose that the match ignites and that we have been expecting a flame. In this case the flame is what we are adapted to. More fully, the mental process which is the expectation is similar to processes which have been caused by flames in the past, and further it is 'directed to' the future. If we can discover what this 'directed to' stands for we shall have filled in the chief part of our account of interpretation.

"Besides being 'directed to' the future our expectation is also 'directed to' flame. But here 'directed to' stands for nothing more than 'similar to what has *been caused by*.' A thought is directed to flame when it is similar in certain respects to thoughts which have been caused by flame. As has been pointed out above, we must not allow the defects of causal language either to mislead us here or alternatively to make us abandon the method of approach so indicated. We shall find, if we improve this language, both that this kind of substitute for 'directed to' loses its strangeness, and also that the same kind of substitution will meet the case of 'direction to the future' and will in fact explain the 'direction' or *reference* of thinking processes in general.

"The unpurified notion of cause is especially misleading in this connection since

and Richards appears to remain wholly within instrumental signification. All signs, for Ogden and Richards, are instrumental signs; all signs are subject to "interpretation."[34] Hence their difficulty in attempting to elucidate the connection between Thought and Referent. Because they recognize only instrumental signs, they cannot treat the relation of Thought and Referent semantically; hence the departure from semantics at this point and the quite arbitrary positing of the behavioristic presumption. Behaviorism, purified or unpurified, cannot use signs intelligibly.

The semantics of John of St. Thomas, on the other hand, is concerned only incidentally with instrumental signification. The whole point and force of his analysis is to distinguish and recognize the role of formal signification. The formal sign, of course, is only the semantic way of understanding the concept, just as the instrumental sign is the semantic way of understanding words or any extrinsic symbols. In moving to the level of formal signs, then, we depart from the more obvious part of semantics and enter the part intimately connected with the knowing process. It is perhaps for this reason that current semantic analysis is inadequate, since it has no means of recognizing the formal sign. As a result, today's semanticists adopt the expected course of denying or ignoring the role of the formal

it has led even the hardiest thinkers to shrink from the identification of 'thinking of' with 'being caused by.' The suggestion that to say 'I am thinking of A' is the same thing as to say 'My thought is being caused by A,' will shock every right-minded person; and yet when for 'caused' we substitute an expanded account, this strange suggestion will be found to be the solution . . ." (pp. 52-55).

It is, perhaps, hard to conceive of a more burdened explanation.

[34] "If we stand in the neighborhood of a cross road and observe a pedestrian confronted by a notice *To Grantchester* displayed on a post, we commonly distinguish three important factors in the situation. There is, we are sure, (1) a Sign which (2) refers to a Place and (3) is being interpreted by a person. All situations in which Signs are considered are similar to this." (*Ibid.*, p. 21.)

Contemporary writings agree in general on the need of such "interpretation" in all signs. Cf. C. I. Lewis, *Mind and the World Order* (New York, 1929), especially Chapter III. For a misunderstanding of the "interpretation" of Aristotle's *De Interpretatione*, cf. Charles W. Morris, *Foundations of the Theory of Signs* (University of Chicago Press, 1938), p. 30. Vd. on this point St. Thomas, *De Interpretatione*, Book I, lect. 1, n. 3.

sign. By reason of their so doing, the problem of knowledge for them becomes insoluble or non-existent. For all instrumental signification, by the nature of the case, must remain inadequate, since it is a consequence of knowing. It shows only the expression of knowing, not knowing itself. Formal signification, on the contrary, is the signifying in the knowing process itself: it is the relation of "Reference" to "Referent," the nexus of the mind and object. But we must then recognize that here we enter the dimension of the problem of knowledge and go beyond the problem of signification. The formal sign, the concept, can be understood ultimately only in terms of how there is any knowledge at all.

However, the insufficiency of the instrumental sign, which, negatively, shows the need of the formal sign, can be indicated. Any instrumental sign, by the nature of the case, involves ambiguity. This is what is meant by "interpretation" for, being that kind of sign—being only instrumental—it must be interpreted since it can signify more than one thing. The instrumental sign depends for its signification, not upon itself, but upon the signification it is expressing. Hence it is the signification it is expressing which must be obtained in communication. But to obtain the signification the instrumental sign is expressing is to go beyond the instrumental sign itself. Since, then, the instrumental sign is only the extrinsic expression of signification, there is nothing to prevent one and the same instrumental sign from expressing different significations. If, then, there were only instrumental signs there would be inescapable ambiguity, and hence no communication would be possible; there would be only an endless regress of ambiguous signs. Communication, then, depends upon formal signs, which is only another way of saying that instrumental signs, even to be signs at all, must depend upon formal signs.

This may be put more clearly by taking words as instances of instrumental signs and concepts (notions, ideas) as formal signs. Words are essentially ambiguous (which, of course, is not the same as meaningless). Any word, as a word, need not express the signification it does—this is the sense of the *ad*

placitum. Nor need any word, as a word, express only the one signification it may in a particular case express. One and the same word, or one and the same group of words, may signify various things; it all depends upon the precise signification the user of the words intends to convey *through* the words. Nor does the user of the words depend wholly upon the words for what he wishes to express through them; if he did, he himself would also be lost in ambiguity. But he *knows* what he is signifying through words which may be ambiguous to others. This involves the concepts or notions which he has and which he is expressing with some arbitrariness in words. Thus it is *this* signification, the concept, which he intends to signify instrumentally to someone else. Hence, communication is possible only in formal signs expressed instrumentally, and not only in instrumental signs alone.

The role of the formal sign can be shown more positively by the use of a diagram. The triangle of Ogden and Richards appears to be an over-simplification, as it would be in ignoring the problem of knowing and the role of the formal sign. In taking account of this, the diagram might be something like the following. (See Fig. II.)

Starting with instrumental signs (the most obvious), the diagram makes clear the arbitrary (*ad placitum*) connection of instrumental signs and formal signs. Several instrumental signs are arrowed to the formal sign to indicate there is not a one-to-one correspondence. The same formal sign (concept) may be expressed by different instrumental signs. The reverse would also hold: one instrumental sign may express different formal signs. This emphasizes the arbitrariness involved in this relation. The truncated arrow leading from the instrumental signs to the object shows that only an indirect relation is there.

The formal sign (the concept) signifies naturally and directly its signified, the object. This relation is direct and natural because of the complete dependence of the formal sign upon the object, *i. e.*, the formal sign takes its whole being in representing the object, and hence the sense in which formal signification

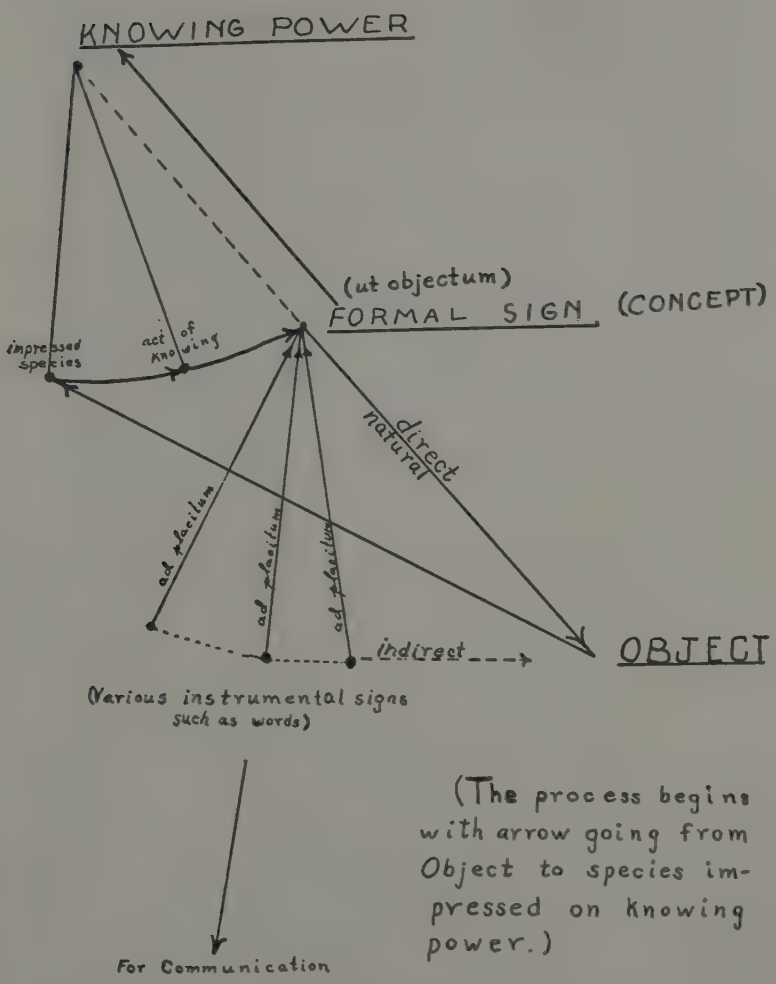
KNOWING POWER
(ut objectum)
FORMAL SIGN (CONCEPT)
impressed species
act of knowing
direct
natural
ad placitum
ad placitum
ad placitum
indirect
OBJECT
(Various instrumental signs such as words)
For Communication
(The process begins with arrow going from Object to species impressed on knowing power.)

FIG. II.

is the same for all. The dotted line running from the formal sign to the knowing power indicates that this representation of the object is to the knowing power. There is no " interpretation " involved in this signification, hence the necessity of having one continuous line running from the object through the formal sign to the knowing power. The line is dotted from the formal sign to the knowing power to show the attaining of the knowing power " *in obliquo* " by the formal sign. The line and dotted line from object to knowing power (really one line) illustrates the comprehensive relation involved in the sign, knowing power, and signified which John of St. Thomas elaborates so extensively. The arrow extending from the formal sign to the knowing power indicates the sense in which the formal sign can be related to the knowing power distinct from its relation to the object (the sense of the double relation); here, however, " signum respicit potentiam directe *ut obiectum*, non formaliter ut signum." The point of all this is always the *object*ivity of knowing.

Finally, lines are drawn from the knowing power to indicate the other elements involved in the whole knowing process, the impressed species and the act of knowing, both of which are prior to the formal sign which is the term and manifestation of the knowing power. The arrow extending from the object to the impressed species is the last point in terms of signification, but the first point in terms of knowing. For the object inaugurates the whole process by the impression of its species upon the knowing power which, aroused into act, manifests its likeness of the object in the formal sign, the term of the knowing process; *then*, we signify instrumentally.

It is at this point and in terms of this sketchy diagram that we can see somewhat the extent of the original " problem of meaning." The holders of the principle of verification as the principle of meaning do not even get to the recognition of instrumental signs; they are entirely in reverse since they must suppose, to be intelligible, that words as such are not signs since their significance must yet be obtained by verifying in some way. Ogden and Richards recognize instrumental signs and

see how they must already have significance, since it is when "a thinker makes use of them that they stand for anything." But, in seeing this, they do not likewise see the need of more signification or, perhaps better, the need of signification different from instrumental signification. For this hiatus, they rely upon a purified behaviorism which, as a matter of fact, is outrageous semantically.

But it is here that we also see how we have to pass beyond the level of semantics itself and into the problem of knowing. The formal sign, while excellent semantics, is understandable only in terms of knowing since it is a part of it. The "problem of meaning," then, becomes intelligible as the problem of signification while the problem of signification becomes intelligible fully in the problem of knowledge.

"Igitur facere cognoscere latius patet quam repraesentare, et repraesentare quam significare." This is the semantics of John of St. Thomas.

JOHN A. OESTERLE

BOOK REVIEW

Principles for Peace: Selections from Papal Documents—Leo XIII to Pius XII. Edited by Rev. Harry C. Koenig. Milwaukee: Bruce, 1943. Pp. xxv + 894, with index. $7.50.

We must be deeply grateful to the Most Reverend Members of the American Hierarchy who serve on the Bishop's Committee on the Pope's Peace Points for undertaking to present to us this generous volume of Papal documents, which can serve as a sure guide for Catholic thinking on peace and the making of peace. The words of the Holy Fathers from Leo XIII to Pius XII are directed for the most part to the Catholics of the world; on Catholics rests the burden of bringing peace to the world. As Pius XII boldly stated in his message last Christmas: "The progress of mankind in the present confusion of ideas has been a progress without God and even against God; without Christ and even against Christ. In saying this we do not wish or intend to offend the erring ones; they are and remain our brethren. It is fitting, however, that Christians reflect on that *share of responsibility which belongs to them for the present afflictions.* Have not many Christians made concessions to those false ideas and ways of life which have been so many times disapproved of by the teaching authority of the Church?"

Catholics, then, above all others should ponder over and study carefully these words of Christ's Vicars on earth. First of all, they should with grateful hearts humbly thank Almighty God for having so disposed the ways of His Providence that in the crises of the past decades we have had such leaders as Leo XIII, Pius X, Benedict XV, Pius XI, and Pius XII. The rest of us have had a difficult time trying to follow where they led; in fact, we have for the most part fallen far behind them, either ignoring their appeals or timidly apologizing for their audacity. Perhaps this grouping of their inspired utterances within the covers of one volume may arouse us from our lethargy.

Secondly, Catholics should draw great comfort from this succession of Papal documents. Since the outbreak of the war numerous writers have appeared in books, magazines and newspapers with critical analyses of the evils that precipitated the conflict. Place alongside these diagnoses some of the warnings of Leo XIII: they read like prophecies, until one remembers that a Catholic thinker does not have to recur to the trial and error method nor is he bound down by the experience he can gain in his own short lifetime; rather he has behind him the wisdom of centuries, above him the wisdom of God, with which he can without difficulty predict rather accurately the outcome of men's weary journeying away from God and

Christ. This prophetic tone is especially discernible in the writings of Leo XIII; perhaps because we can so easily verify their fulfilment. In view of this we should not accuse the present Pontiff of pessimism when he threatens future war and destruction if the voice of Christ and His Church remains unheeded. God could not be so unmerciful as to give us peace while we still reject Him and His Son. The world is on the wrong road; as yet there is little evidence that it intends to return to the right road: why then be optimistic?

The reader will find in this volume a minute analysis of the causes of war and of division among men; causes that are individual, social and international. There are, among others, egoism, envy, greed, hatred, false liberalism, unequal distribution of economic goods, diversity of language. With the exception of the last, they can all be remedied, for they all spring from perverse human wills. In these pages you will find no hopeless falling back on determinism, economic, geographic, political, historical or what you will. The Popes place the blame squarely on the shoulders of human beings; they do not hesitate (and here they are practically alone) to remind the rulers of the world of their obligation in conscience and before God to put an end to the causes of war. Many times we are tempted to doubt the sincerity of our rulers; we have heard so many reasons assigned for the past war besides the one that was proclaimed publicly. It is helpful, then, to have the reassurance of the supreme moral teacher of Christendom that while we may be fooled, God is never fooled; His judgments fall upon governors and governed alike and our chief obligation is to make certain that we do our part in bringing about ultimate peace.

There are many other important reminders for Catholics in these pages. In a letter to Cardinal Lorenzo Nina, the new Secretary of State, Leo XIII recalls a previous message he had delivered to the world: "... We said that the chief reason of this great moral ruin was the openly proclaimed separation and the attempted apostasy of the society of our day from Christ and His Church, which alone has the power to repair all the evils of society.... From this it was easy to conclude that if in past ages the Church was able to bestow upon the world such signal benefits, she can also do it most certainly at present; that the Church, as every Catholic believes, being ever animated by the Spirit of Christ—Who promised her His unfailing assistance—was by Him established teacher of truth and guardian of a holy and faultless law; and that, being such, she possesses at this day all the force necessary to resist the intellectual and moral decay which sickens society, and to restore the latter to health."

We must have our post-war plans; we should not be too sanguine of their success. There is only one plan that has any certitude about it, the plan that is embedded in the apostolic mission of the Catholic Church. When the determining majority of the world are united to Christ and to

His Church there will be some hope of permanent peace. Only the great of this world can sit down at the peace table and draw up the plans for peace; only the little ones can make peace come into the world. The great could find much wisdom in the pages of this volume; the little ones can discover the secret of peace making, which ultimately rests in their hands. At the beginning we quoted from the present Holy Father's 1943 Christmas message (which is not included in this book); we may conclude with the continuation of that citation: "Reflection on yourselves and your deeds, and the humble recognition of this moral responsibility will make you realize and feel in the depths of your souls how necessary it is for you to pray and work in order to placate God and invoke His mercy and to participate in the salvation of your brethren." That is not a very complicated peace plan.

JAMES M. EGAN, O.P.

BRIEF NOTICES

Tomás de Aquino y la Psicopatología. By Dr. E. Eduardo Krapf. No. 2 in the series of monographs of the "Index de Neurologia y Psiquiatria" published by R. Orlando. Buenos Aires: "Editorial Index." 1943. Pp. 43, with bibliography. 2 pesos.

Much has been written concerning St. Thomas' *normal* psychology. His thought in the field of psychopathology, or *abnormal* psychology, remains to date relatively untouched. This is due in large measure, as the author notes, to the fact that many capable historians of psychiatry acknowledge in passing St. Thomas' merits as a philosopher, but fail to concede him even the smallest niche among psychopathologists. Zilboorg is a recent and prominent member of this class. Others, among whom might be mentioned Kopp, while recognizing St. Thomas' importance to the science, have written only abbreviated treatises based on works falsely attributed to the medieval Doctor.

Dr. Krapf strives to show the extent to which modern psychopathologists are indebted to St. Thomas. This he does by indicating with pertinent quotations the similarity between many basic tenets proposed seven hundred years ago and those held today. Observations on pathogenic processes, the author relates, that are now associated with Freud and Hughlings-Jackson are to be found at least in principle in the writings of St. Thomas, e. g., "Quando intellectus non dominatur, agunt animalia secundum phantasiam" (*De Anima*, 3, 6). Likewise, a similarity exists between Freud's fundamental concept of two forces or instincts, the sexual and the aggressive, and St. Thomas' considerations regarding the concupiscible and the the light of equivalents for the latter used by modern French Scholastics: "appétit de conquête" and "appétit de combat." However, it is to be understood that St. Thomas didn't ascribe to those two appetites the omnipotence that Freud postulated for the sexual and aggressive tendencies.

Boring, the eminent historian of experimental psychology, names the French physiologists of the eighteenth century as "the logical and perhaps actual progenitors of the James-Lange theory of emotion." Lange's theory, however, with its stressing of vasomotor changes, has just as logical a forebear in that proposed by St. Thomas. Substitute the Scholastic term *passion* for *emotion*, the word *heart* for *circulatory movements of the blood*, and we find the two opinions practically identical.

Part of the criticism levelled against Kopp can be applied to Dr. Krapf's monograph. It is far too brief, though it will serve as an excellent outline for further study for those interested in psychiatrical problems. In reply to his justly sharp observation about the lack of writings devoted to the

study of St. Thomas' opinions in psychopathology, we will here presume to refer the reader to *A Theory of Abnormal Cognitive Processes* written by the Rev. Dr. Robert E. Brennan, O.P. This work based on principles of St. Thomas was published in Washington, D. C. in 1925. It has, aside from its many other merits, a more extensive bibliography than is to be found in Dr. Krapf's treatise.

Mediaeval Studies: Vol. V, 1943. Toronto, Canada: Pontifical Institute of Mediaeval Studies. Subscription: $5.00.

The fifth volume of *Mediaeval Studies* contains the following series of articles: "The Handbook of Master Peter Chancellor of Chartres," by V. J. Kennedy, C.S.B.; "Sur le Doctrine de l'Aséité divine," by J. Maritain; "A List of Photographic Reproductions of Mediaeval Manuscripts in the Library of the Pontifical Institute of Mediaevel Studies, Part II—Authors," by R. J. Scollard, C.S.B.; "The Logos as a Basis for a Doctrine of Providence," by M. M. Marcia, I.B.V.M.; "Greek Works translated into Latin before 1350" (continuation), by J. T. Muckle, C.S.B.; "The Conception of Substance in the Philosophy of the 'Ikwan as-Sefa' (Brethren of Purity)," by Emil L. Fackenheim; "A Thomistic Glossary on the Principle of the Pre-eminence of a Common Good," by I. T. Eschmann, O.P.; "Maistre Nicole Oresme, Le Livre du Ciel et du Monde," Text and Commentary (continued) *Livres III et IV*, with a Critical Introduction by A. D. Menut and A. J. Denomy, O.S.B.

Traditio: Studies in Ancient and Mediaeval History, Thought and Religion, Vol. I, 1943. New York: Cosmopolitan Science & Art Service Co., Inc. Subscription Price: $6.50. Single copies: $7.50.

Among the outstanding articles in this latest periodical dedicated to historical research are the following: "Orientations theologique chez Saint Irénée," by Th.-Andre Audet, O.P.; "Oriental Influence in the Gallican Liturgy," by Joannes Quasten; "Missa Grecorum, Missa Sancti Johannis Chrisostomi," by Dom Anselm Strittmatter, O.S.B.; "Studien zur Theologie des zwölften Jahrhunderts," by Artur Landgraf; "The Notitia Intuitiva of Non-Existents according to William of Ockham," by Philotheus Bohner, O.F.M. In the Preface the Editors explain the purpose of this new periodical: "Studies in ancient and mediaeval history, thought and religion: in this first volume, they are taken from the fields of Classical as well as Christian Antiquity, of Liturgy and Patrology, of Historiography, Scholasticism, Canonical Jurisprudence, and Political Theory. This selection of departments of scholarship which are but too often anxiously segregated will convey to the reader the general program which was in our mind when we chose for the new enterprise the name *Traditio*: it represents an

effort toward comprehensive knowledge of all the living forces, forms, institutions, and ideas which have made, both in the Church and in secular society, the texture of history something more than a mere deposit of dates and facts." Despite this explanation, we have some regret that the name *Traditio* was chosen; it is for the Catholic thinker the name of the vital principle inherent in the Catholic Church, which makes her the supreme Teacher of Mankind under the direction of the Holy Spirit. Sacred Scripture, the writings of the Fathers and Doctors of the Church, other ancient writings and monuments are merely witnesses to this vital Tradition. Articles in a periodical of the 20th century can only be studies of the witnesses to Tradition; the Church herself is the only means accessible for the accurate determination of Tradition. In any other field of research, the use of the word *Traditio* would not have been so misleading.

The Man from Rocca Sicca. By REGINALD M. COFFEY, O.P. Milwaukee: Bruce Publishing Co., 1944. Pp. xi + 140. $1.75.

The author of this new life of St. Thomas Aquinas set out to present the man, who was also a scholar and a saint. Much has been written on Thomas the Scholar and his thought. Something has been done on Thomas the Saint. However, we often look and look in vain for a straightforward account of the life of St. Thomas. We have it in this work. It will be an aid also to those who are interested in the thought of St. Thomas, for the author has carefully made note of the literary activities of St. Thomas during the course of his life. There is no false separation in this book; Fr. Coffey is very careful to show that Thomas was the man he was, but he was a scholar and a saint.

BOOKS RECEIVED

S. M. C. *Once in Cornwall: Legends of Saints and Dragons.* New York: Longmans, Green & Co., 1944. Pp. 179, with index. $2.00.

Hughes, E. J. *The Church and the Liberal Society.* Princeton, New Jersey: Princeton University Press, 1944. Pp. xv + 307, with index. $3.00.

Hughes, Philip. *The Popes' New Order.* New York: The Macmillan Co., 1944. Pp. viii + 331, with index. $2.50.

Manning, W. F. (Editor). *The Life of St. Dominic in Old French Verse* (Harvard Studies in Romance Languages, Vol. XX). Cambridge: Harvard University Press, 1944. Pp. xiii + 358, with index. $4.00.

Mauriac, F. *The Eucharist.* (Translated by M. Dufrenoy.) New York: Longmans, Green & Co., 1944. Pp. 75. $1.50.

Moore, P. S. & Dulong, M. *Sententiae Petri Pictaviensis 1.* (Publications in Mediaeval Studies, VII.) Notre Dame, Ind.: University of Notre Dame Press, 1943. Pp. lxii + 326, with indices.

Nash, A. S. *The University and the Modern World.* New York: The Macmillan Co., 1944. Pp. xxiv + 312. $2.50.

Reardon, J. J. *Selfishness and the Social Order.* (Catholic University of America Philosophical Series, Vol. LXXVII.) Washington, D. C.: Catholic University Press, 1943. Pp. xiv + 220.

Rosalia, Sister M. *Teaching Confraternity Classes.* Chicago: Loyola University Press, 1944. Pp. xi + 257, with index. $1.00.

Thomas, G. F. (Editor). *The Vitality of the Christian Tradition.* New York: Harper & Bros., 1944. Pp. xi + 358. $3.00.